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Three Kinds of Vision

A VERY sensible and timely article appeared recently, on the editorial page of a Chicago newspaper, about an aged lady who was wondering as to whether she was living among a specially angelic group of men and women, inasmuch as she failed to find in any of them the evidences of decadence and degeneration about which she read and heard at every turn; indeed, she found the young people of today far ahead of their grandfathers and grandmothers in physical, mental, and moral qualities.

The trouble with the present age and generation is that it has the faults of its virtues; and one of these faults, which is one of its virtues run to seed, is a tendency to too close—morbidly close—investigation of everything and everybody. Not only that, but it has a tendency constantly to contemplate the abnormal.

In medicine the present is the age of pathology. Every medical scientist of any note keeps his eye glued to a microscope, watching the growth and antics of disease-producing germs, or observing the development of toxin-cultures, or scrutinizing maybe the cell structure of cancer or other similar object, and making minutely detailed reports of these morbid processes to an open-mouthed scientific world. All of which, of course, is a highly useful turn for medical science to take and has resulted in manifold wonderful life-saving discoveries.

On the other hand, however, this attitude inevitably has had the effect of making everybody—including the doctor himself—feel as though we were walking all the time in a veritable ambush of microbes, through which any man was exceedingly fortunate to pass with his life; that cancers, tumors, and the like were the rule rather than the exception, and everybody was their natural prey, and escape from them only a rare accident. In other words, pathology—the science of disease, of the abnormal—is such a dominant feature in present-day medicine that we have almost come to regard the diseased condition as the normal, typical state of affairs.

Precisely the same is true about all phases of our modern life. It is the age of pathology and the microscope. Everybody is putting specimens of morbid growths under the magnifying lens and calling upon us to examine and verify them. It is a comparatively new experience to be able to study these things at such close range and in such enlarged proportions; that prompts this mental attitude; and, so, everybody is peeping through objectives.

The novelist of the period picks out some excrescence on the body social or on the individual life and makes a "slide" of it, and then employs all the graphic tricks of language at his command to make his readers see the morbid details as vividly as if they were actually looking through his microscope. The artist, with his camera or his brush, catches all the freak shapes that flit across his field of vision and throws them on the canvas with a high-power magic lantern, so that every unnatural streak may stand out in bold relief. And thus down the whole line of human experience.

Everybody is inviting us to look through his microscope at some wart or carbuncle of

which he has made a mounting, and to pay for the privilege of peeping, until one is reminded of the schoolboy's barter proposition to his mate, "Give me a bite of your apple, and I'll let you see my sore toe."

So the whole civilized world, under the tutelage of its science and literature and art (or perhaps they are but responding to the morbid demand of the civilized world) has its collective eye to the sight-glass of a high-power, oil-immersion microscope, under which are displayed, not the normal, natural things of life, but rather the abnormal, the disease-products of existence; and it is discussing them in all their morbid detail. And—partly because the showmen are really confused about the matter themselves, partly because the morbid curiosity of the gazers leads them to excesses—those who speak and write and portray them make us believe that these monstrosities and freaks are the normal, the universal things of human life.

I am not suggesting, however, that our speakers, writers, and artists are wilful or deliberate quacks, who exhibit these nauseating excresences and humors for the express purpose of making people think that they are the victims of them. No, they are just following out the tendency of the times, which, as I said at the outset, is well represented in the fact that pathology is the dominant branch of medical science just now. In truth, it is the dominant phase of all our thought and vision just now.

It may well be said that there are three kinds of mental vision, as there are of physical. First there is ordinary, naked-eye vision, by which we see the everyday visible things all around us. This kind of vision was exercised by the great portrayers of everyday life—the Shakespeares, the Fieldings, the Dickenses, and the Hogarths. These men had keen eyes to see and artful pens and brushes to describe what anyone might see as he passed along the streets and highways, but most of us do not. These men opened our naked eyes.

Then there is the telescopic vision, which enables us to take a sweeping comprehensive view of the whole of life in its vastnesses and in its relations to other spheres, just as the astronomer is able, by means of his lens, to sweep the skies and get a perspective of all the heavenly bodies. This is the kind of vision possessed by the loftier among the poets and artists, by the Miltons and Shelleys and Rembrandts and Turners and Brownings; and through them it is given to us. Men and women thus gifted allow us to look through their telescopes. This sort of vision is a very fine thing if it is not indulged in too much. But continual gazing through a telescope, which at first helps a sense of proportion, at length destroys it, and makes a man dreamy, unpractical, inclined to despise the things of earth.

And, lastly, there is microscopic vision, by which we are able to observe a whole universe in a mere point of space, be it a droplet or water or the tiniest speck of dust. Such vision is that of the portrayers of motives and idiosyncrasies of the human soul, as displayed by our Ibsens and Dostoyefskys and Poes and Hawthornes. And this last kind of vision, which, I believe, is perhaps the most useful of all and has brought about the most practical advances in the art and science of living, yet is also the most dangerous in its influence upon men's point of view, especially when it is used to magnify the abnormal and pathologic. For if we keep our eyes too long and constantly at the peephole, looking at disease-bugs and cancer-cells, by and by we will come to think that all the world is germ-infected and cancer-riddled.

And that, I believe, is why, when we read the books and see the portrayals of today, we get the impression that men and women are decadent and degenerate; yet, when we meet these same men and women in everyday life, not studying them with our magnifying glass, we really find them quite decent, yes, and even wholesome.

The situation that has not its Duty, its Ideal, was never yet occupied by man. Yes, here, in this poor, miserable, hampered, despicable Actual, wherein even now thou standest, here or nowhere is this Ideal. Work it out therefrom, and, working, believe, live, be free!—Carlyle.

"LITHOGRAPHIC" PRESCRIPTIONS: WHY NOT?

We learn that at a meeting of a Committee of the House of Commons the distinguished chairman said he had heard about many eminent medical men having their prescriptions lithographed. The learned *Lancet* professed to be mortified and astounded that an intelligent layman should make such an "absurd" remark, "showing the fathomless depth of his ignorance concerning medical men."

But why shouldn't the physicians have his prescriptions "lithographed" if he wants to? I know a good doctor, enjoying the largest practice in his community, who for every case of indigestion, no matter what the cause, prescribes a mixture of pepsin, capsicum, and

nux vomica. Think what a lot of trouble it would save him if he could have this prescription nicely printed so he could rip off a sheet and hand it to every applicant suffering from gastric distress.

There are hundreds of physicians, yes, thousands of them, who have favorite prescriptions from which they do not vary from month to month and year to year so much as the dotting of an "i" or the crossing of a "t." Let some ingenious person who is fond of figures tell us how much unnecessary mental exertion and muscular effort might be saved if these favorites were nicely printed, or "lithographed" if you please, and "padded" in convenient books handy for the doctor's pocket.

Then there are the hospitals and dispensaries most of which have printed formula books for ready-made mixtures, which are put up by the gallon or hogshead, to be dispensed as "number 5" or "number 54" in the quickly diagnosed cases of patients seeking the ministrations of the members of its staff.

Why not lithograph these prescriptions? The doctor knows them by heart anyhow, and so does the drug-dispenser.

To be perfectly honest with ourselves, there is not a physician in general practice who has not some favorite prescription, and usually several, which he gives repeatedly in practically identical form and dosage; and, to be equally honest, the writer can see no good reason why the physician should not use them if he wants to and *if these preparations give him good results.*

Before the doctor comes to the point where he uses these things over and over again without variation or modification he has usually "cut and tried" until his formula is just about right. At this point many good men have these combinations made up for them as tablets, pills or mixtures, and either dispense them themselves or have them carried at their pharmacist's where they can be dispensed upon their prescriptions.

All things considered this is not a bad idea. Men who have come to this point in their therapeutic work are pretty likely to know what they want and know also the results that they are going to get from the remedies given. In our Pharmacopeia and other standard works there are numerous directions for drug combinations which have done splendid service, some of them for a generation or more; and the man who would insist upon writing a prescription for every one of these, designating the various ingredients, would be considered by almost any pharmacist as just a little "wrong in the belfry."

As the readers of CLINICAL MEDICINE know, we have advocated, and do advocate, as far as possible the use of the single remedy, but we also know (since experience has taught us) that there are numerous drug combinations which are well-nigh indispensable. If I want to add to that list the fruit of my own experience, why shouldn't I?

Whenever a man or a woman shuts himself or herself to the entrance of truth on account of intellectual pride, preconceived opinions, prejudices, or for whatever reason, there is a great law which says that truth in its fulness will not come to that one from any source. And, on the other hand, when a man or a woman opens himself or herself fully to the entrance of truth from whatever source it may come, there is an equally great law which says that truth will flow in to him or to her from all sources and all quarters.—Trine.

THE ENCROACHING NURSE

From time to time we have heard sundry mutterings of discontent over the attitude being assumed by the nurse. One fair sister came to us as a feminine helper. To enhance the efficacy of our therapeutics, she added her gentle ministrations. How lovely! Unfortunately the nurse hasn't stayed put. She has grown ambitious. She has become unpleasantly enterprising.

We find the modern nurse usurping our functions, examining patients, diagnosing their maladies, applying treatments—and we more than suspect that when we have given our directions, the moment we take our departure she and the patient get their heads together and conclude to ignore our orders and do something else that the nurse advises. Worse yet, she doesn't tell, but leaves us to believe the result—whatever it be—is due to our own efforts, when in truth these were frustrated by her intervention.

Nevertheless we confined ourselves to grumbling and let her go on, knowing that very soon she would be carried off by an attack of matrimony and her competition become a thing of the past. For has not the wise statistician assured us that the nurse is the most marrying of females and that her average play-time before being entangled in the matrimonial noose is only three years?

But now she has taken the last step, laid the ultimate straw upon our pack. If there remained one little fragment of our ancient privileges to which we doctors cling, it was the right to indite testimonials for the manufacturing chemists. Even that she has appropriated! We have before us a neat circular on which a head nurse details some seven cases treated by her.

Without the physician's corroboration!

Why, in very truth—but just listen for yourself:

"Solutions from physicians did not seem to help very much. I have been using——— for the last week. The patient has improved" —and more to that effect. "He has been to almost every hospital in P., and physicians gave him up as a hopeless case. I have been using ———. I treat him once or twice a week, and he is now able to walk. . . . "The physician who treated him did not seem to help him very much. I gave him ———, which was used with splendid results."

There you have the whole story, the confession badly made. She treats patients who are under the physician's care at the time, and writes testimonials of the secret proprietary preparation she has substituted for the remedies selected by the doctor. The Philadelphia Nurses' Society had better get its head nurse muzzled, or the County Society will get busy.

When a certain now famous statue was all but finished, one midnight a sudden frost fell upon the city. The sculptor (who was then a poor man) lay awake in the fireless room and thought of the still moist clay, and how the water would freeze in the pores and destroy in an hour the dream of his life. So the old man rose from his bed and heaped the bed-clothes reverently around his work. In the morning, when the neighbors entered the room, the sculptor was dead. But the statue lived. Who of us will give himself to his work to that extent?

OUTDOOR SCHOOLS FOR TUBERCULOUS CHILDREN

Many countries are establishing open-air schools for the tuberculous. Examining the children of tuberculous persons, Poli found that thirty-six out of thirty-seven gave positive skin reactions. All these appeared perfectly healthy, and all developed admirably after a sojourn of some weeks in the open-air school. Randi made similar observations on a great number of children declared to be pretuberculous but who really were tuberculous. Eighty percent of these delicate children, placed in the open-air schools, were transformed after a sojourn of a only a few weeks in this new environment.

Usually the child's weight increases, its thoracic cage develops, its general condition improves. Certain morbid lesions, such as the adenitis and troubles of respiration and circulation, are amended or disappear. In Paris there is but one such school, but here, Parmentier has determined the powerful action of the method upon more than two thousand children.

Here we mark the next great advance in the march of a beneficent paternalism—the institution of separate and open-air schools for the tuberculous. Thanks to the development of tuberculin tests, we now have the means of surely and safely detecting the presence of tuberculous disease in the child. We know well the perils to the other children coming from the presence of these unfortunates among their classes. Now that the experiment has been tried and we find that by the institution of these open-air schools the health of tuberculous children is notably improved, the conclusion follows almost mathematically—we must have these schools, not here and there as exceptions, but in every center of population.

Is this feasible?

Such arrangement does not increase the total number of pupils, so that there need be but few additions to the pay-roll of teachers. In the warmer seasons there need be no extra expense for quarters, except during wet or stormy days, when some protection is required. Perhaps the Norwegian porch-system devised for the treatment of the tuberculous would prove applicable. Let the present schoolhouses be surrounded by wide porches, where some protection against the weather could be supplied by awnings and screens and some means of warming added as the weather grows colder. In all but the coldest times this would prove sufficient—and during the worst of the winter an ideal system would send these subjects to the warmer Southland. Or, their vacation might be placed in the winter, and the schooling extended into the summer, to secure the full term.

We are just beginning to realize the advantages that may be derived from the participation of our profession in the management of the public schools. The association of mental dulness with hookworms or with adenoids, the early detection and segregation of pupils affected with various infectious maladies, the lessons in sanitation given by visiting physicians and nurses, the prevention of smallpox by vaccination, and many other benefits are derivable from this development.

Possibly the lessons thus practically taught in hygiene and preventive medicine may prove in after life not the least valuable of the student's school acquisitions.

What would all these benefits amount to as compared with those derivable from the separate outdoor schools for the tuberculous?

What an opportunity to the man or woman who desires to be of use to the community,

by stepping in and urging this reform with the energy that would make it a success.

Children are susceptible to the malefic influences of bad air far more than are adults. The ventilation of schoolhouses is nominal—never perfect save in theory. The worse objection to the substitiution of municipal schools for home teaching is the transmission of contagious disease among the children. None of the contagions is so dangerous or so prevalent as tuberculosis. Even for healthy children a marked improvement in scholarship results when the classes desert the schoolhouse and assemble in the open air.

The obvious difficulty lies in the cost—there must be more room for schoolhouses spread over more space by the addition of the sheds or porches. But how much does a tuberculous patient cost the community? How much is it worth to prevent the spread of this malady through the schools?

Are you in earnest? Seize this very minute;
What you can do, or dream you can—begin it.
Boldness has genius, power and magic in it.
Only engage, and then the mind grows heated;
Begin, and then the work will be completed.
—Goethe.

SERUM VS. DRUG THERAPY?

I have purposely written the title of this little preachment in the way I have, because it represents the popular angle of view. There seems to be a tacit, unwritten understanding among medical men, no less than among the public, that there are two distinct modes of therapy, one represented by the serums, the other by drugs, and that these two are, if not antagonistic, at least diametrically different in their *modus operandi*. So marked is this sentiment that in its extremest manifestation we find men ranging themselves into two camps: one, advocating the serum treatment of every disease in which a serum treatment has been elaborated, to the exclusion of all drugs, and frankly declaring that they only employ drugs in other conditions as a temporary makeshift only, pending the universal application of the serum method, which they confidently assert will come; the other, persistently clinging to drug therapy and that alone in face of the march of the serums, and just as confidently predicting the passing of serum therapy as an evanescent fad.

To be sure, the number of such extremists is nowadays very small. The great majority of practitioners concede the value of both modes of therapy, and avail themselves of each in its particular field of usefulness. A great many even go so far as to recognize that both may be of value in the same diseases, and so they rely on neither by itself, but give the patient the benefit of the two together. But the most that is appreciated is that the two modes may be *synergistic*. It does not seem to occur to anybody—at least I have not yet seen it suggested—that their *modus operandi* may be *identical*, at least in many respects and in many instances.

Yet the truth is, that under the modern conception of drug therapy precisely the same fundamental therapeutic principle underlies the remedial action of drugs as underlies the action of serums. Indeed, under the still broader conception of therapeutics as a whole which prevails today, there can be no other therapeutic principle, whether it pertain to a drug, or a serum, or a physical mode, or a psychic suggestion. If any one of these measures is to be curative, it can be so only in virtue of its power to call forth the offensive and defensive resources of the body itself against the morbum of the disease.

The serum treatment has its field of usefulness in the infectious diseases; and, so far as at present discernible, there alone.

In this field, no doubt, it will growingly continue to be the chief reliance, as the calling out of troops for defense against an invasion—although, even so, we do well not to lose sight of the incidental conditions which attend the calling out of troops, their mobilization, their distribution, and so on. But there are many diseases whose morbum does not consist in the invasion of the system by microorganisms, just as there are disasters to a country other than foreign invasions, in which the calling out of troops is beside the mark; and in these diseases the same principle of body-defense must be applied in other forms. Against them, too, the body has its own appointed agencies of offense and defense, whose proper stimulation is the objective of rational therapeutics; but in these cases the agencies are not the side-chains of Ehrlich or the opsonins of Wright, and these are therefore not to be called into action by serums or vaccines. They are physiologic processes, to be hastened or retarded by the intelligent administration of drugs.

As to the infectious diseases, I have already hinted that there are other things to be done in the event of foreign invasion than to call out the troops. To speak only of the simplest of these other requirements, there is the rapid and effective transportation of the troops to the places where they are

needed. So, in the infectious diseases, the equalization of circulation, with such drugs as veratrine, atropine, and aconitine, and the toning up of the vessels to favor migration, with digitalin and the like, are just as essential a part of body defense, albeit an accessory part, as the serums themselves. And in many other ways that will suggest themselves to the thoughtful physician, drug therapy, (i. e. definite, well-controlled drug therapy, such as one gets with the active principles) may be made a powerful and invaluable agent of cooperation with serum therapy. I am not at all sure but that more than this may be demonstrated for drug therapy in bacterial infections; that it may be shown to exert a direct influence, not merely synergistic but identical with that of the serums. Here is a side of the subject that deserves looking into and working out. It is a good theme for some able therapeutist's pen.

The love of Nature is a great gift, and if it is frozen or crushed out, the character can hardly fail to suffer from the loss. I will not, indeed, say that a person who does not love Nature is necessarily bad; or that one who does is necessarily good; but it is to most minds a great help. Many enter the Temple through the gate called Beautiful.—Lubbock.

THE QUESTION OF ADVERTISING IN MEDICINE

One of the earliest attempts of mankind to establish a modus vivendi with fellow man, as the world became sufficiently peopled for individual wants to clash, was the decalog. As population thickened conditions became more and more complicated, until now even with such a multiplicity of laws that even the most skilled of their exponents are unable to agree on what they provide, the industry of legislators is taxed to frame enough new ones to keep pace with the need.

Moreover, the fundamental principles of right on which all law is based, are complicated by considerations of religion and of sentiment; of custom, expediency, and social ethics.

A thing may be legally allowable but forbidden by one or other of these. The Jew has a legal right to eat meat of the hog, but his religion forbids it, as the Seventh Day Adventist is restrained from work on Saturday, the Quaker from wearing bright-colored clothing. Sentiment forbids the intermarriage of races even when law is silent. Laws stand on the books whose enforcement is deemed inexpedient, and rights are allowed to lie dormant for similar reasons.

In the medical profession we have an additional set of restrictions, by which we are barred from doing certain things that are perfectly legal, perfectly moral, not contravening any religious tenet or the common sentiment of the public. Advertising comes in this category. More than this, every successful doctor advertises, and nobody more than the illustrious, the great surgeon. But the advertising must be done under certain restrictions, to be "ethical." The problem is how best to advertise without overstepping those limits that the profession would "stand for," and the more illustrious the individual the closer he comes to the limit. And it must be confessed that some of our great men are very daring.

The advertising of supplies for the physician is another matter; and yet even here there is a disposition to draw the lines closer. Exaggeration has been the rule; but the advertiser has said that without striking and extravagant claims the readers' attention could not be arrested; and that no real harm was done because such exaggeration was expected and discounted, just as an old country doctor told us he invariably gave twice the doses suggested to allow for adulteration.

Advertising is a necessity. How is one to make his commodity known to those who need it, when he has something good, except by telling them about it? Here is a man who has come upon something he believes to be useful. He is willing to invest his money in its production, and this demands sales. These require that the prospective buyers should know that such a thing exists, and what are its merits. If the man has such confidence in the merits of his article that he is willing to invest in its manufacture and marketing, he opens his purse and advertises. If the article goes into the hands of the men who will use it, and are therefore best qualified to judge of its true value, the result must depend strictly upon its merits. If the owner has been mistaken, he loses his money and, worse yet, his reputation. The most valuable asset of any mercantile house is its reputation for honesty and good judgment. The house that never yet advocated an article that did not prove as good as the owner asserted, whose prices for quality were not greater than the market, is sure of results when it introduces a new thing. The question of price is important. The plant for manufacturing any goods is a fixed expense; the office and distributing force costs so much; the interest on money invested

amounts to so much; and the profits depend on the quantities sold and paid for. If few articles are sold the individual cost must be high; if many are taken the cost is decreased as the sales increase. It is like building a skyscraper—the ground and the roof cost so much, and each additional story brings down the cost of all relatively, and adds to the earning power.

Writing advertisements is an art, and the man who is proficient finds plenty to do and good pay. Yet it is a simple matter if one obeys the indications. The ad must be seen and read; it must be easy to understand; it must be credible; it must speak of what people want. The writer must believe in what he presents to others. He must comprehend in what particulars it excels other goods, and be able to present these advantages in few but easily understood words. He must consider the audience he wants to reach, how best to reach them, and how best to present his subject to that particular audience. Above all he must avoid that half knowledge that is worse than none—remember the politician who found the controlling vote in his district lay with the Lithuanians, ascertained that they came from Russia, flooded the district with his literature in Russian, and after the storm passed sat down to find out why he had been snowed under.

There has, unfortunately, of late been a disposition to distrust and condemn anybody and everybody who has something to sell. It is assumed that he cannot, under such circumstances, possibly tell the truth. And especially that goods which are advertised must be worthless. Such an idea is, of course, very foolish; but it has undoubtedly arisen out of the shocking abuse of the advertising field which has reached such outrageous proportions during the past few years, and for which, it must be admitted, the public itself has been partly to blame on account of its indifferent, and even jocosely approving, attitude toward fraudulent exploitations of all kinds. The Rufus Wallingfords have occupied quite a respectable place in society, and we have rendered them a sort of admiration for their cleverness.

Happily, however, this state of affairs is now rapidly passing. In this, as in other social matters, the public conscience is being awakened, and there is a general movement toward demanding the square deal in advertising, as in everything else; which will not only add immensely to the efficiency of advertising itself, but will restore the advertiser to his proper place of dignity and public confidence. Indeed, this movement has actually taken concrete, focal shape in the very midst of the advertisers themselves. The Associated Advertising Clubs of America, at their recent convention in Dallas, appointed a committee for the express task of wiping out the fraudulent, dishonest and indecent element in advertising; for which purpose, we understand, money has already been subscribed, and the committee is prepared to carry out a campaign of publicity, education, and, where necessary, prosecution, to bring about conditions of honesty and decency in the advertising field. A most commendable movement, to which every right-thinking man and every reputable advertising medium will certainly lend his and its moral and practical support. The advertising interests of the country, as represented in this Association, cannot be too highly congratulated upon this effort to purge themselves of the enormities that are foisted upon the public in their name.

Our own standpoint has always been that of the seeker for knowledge. If the new thing advertised is better than what we have had, we want the new thing. Our means of coping with disease is not so perfect that we can afford to neglect the least opportunity of improving it. But men exhibit various attitudes in dealing with novelties. Some approach the matter with a firm determination to find the thing bad—and bad it proves to them. Some see only good in it, and welcome every suggestion because it is new. No claims are too extravagant to win their enthusiastic approval before they have given it any trial at all. The men who approach a matter in the true judicial spirit, with neither favor nor prejudice, seeking only to know the truth and its limitations, are not common in medicine.

Did you ever hear of a man who had striven all his life, faithfully and singly, toward an object, and in no measure attained it? If a man constantly aspires, is he not elevated? Did ever a man try heroism, magnanimity, truth, sincerity, and find that there was no advantage in them—that it was a vain endeavor?—Thoreau.

ARSENIC AND DIGITALIS IN PULMONARY TUBERCULOSIS

Some years ago, when the foremost leaders of medical thought, and especially the most prominent internists, were fully imbued with the uselessness of drugs for the treatment of disease and often remained satisfied with a strictly scientific study of the causes, pathol-

ogy, and diagnosis of diseases, it required a good deal of courage to maintain a therapeutic enthusiasm and positivism. Of course, the mere general practitioner could dare to believe in drugs and could continue to prescribe them and observe their action upon the diseased organism, incidentally leading his patients to recovery in a very fair proportion of cases; but men who aspired to stand among the foremost could hardly admit being so unfashionable, so "unscientific," as to waste time with drugs or to prescribe them for any other purposes than as a matter of form.

It is refreshing to observe how some men have maintained their faith in the beneficial powers of remedial agents in spite of the desided opposition in high places; how they were not afraid to give expression to the faith that was within them, and, more still, how they could dare to prove the justice of their position by showing results from drug treatment, which had perforce to be attributed to the treatment administered.

One man who stands among the foremost physicians in the country (we prefer not to designate him by any less embracing term than the general one of "physician") and whom we are proud to own as an American physician has for more than fifty years maintained and asserted the power for good that is inherent in the proper drugs properly administered in indicated conditions; and in all these years he has observed a therapeutic optimism and enthusiasm that is an inspiration to all who are privileged to hear his lectures or to read his writings—we refer, of course, to Dr. Abraham Jacobi. All through his numerous contributions to medical literature the necessity and advisability of deliberate and well-considered drug treatment is emphasized, and his results have time and again shown the justice of his position.

Quite recently Dr. Jacobi discussed, before the Medical Society of the State of New York, the value of arsenic and digitalis in the treatment of pulmonary tuberculosis. It was not the first time that he has done so, it will, let us hope, not be the last time. This paper is well worth studying. It was published in *The Albany Medical Annals* for July, and in *The New York State Journal of Medicine* for the same month.

Dr. Jacobi says that, if there be any medicine which besides quinine and mercury has been called a specific in many diseases, it is arsenic. It is known to act as a poison and strong caustic. It prevents putrefaction, although it is not a powerful antiseptic. It acts very favorably in malaria, chronic skin diseases, and maladies of the nervous system, and has considerable and sometimes unexpected effects in the treatment of lymphoma, even of lymphosarcoma. In small and frequent doses, arsenic improves connective-tissue growth, it thickens the connective tissue of the stomach, and increases periosteal and osteal deposits. The increase of cell growth under the action of arsenic points to the mode in which it is effective.

Hans Buchner, years ago, advocated the arsenic treatment of pulmonary phthisis and believed that phthisis could be prevented by arsenic—the remedy stimulating and gently over-nourishing the cells and thereby increasing the power by which the organism resists the invasion of the bacillary enemy. Under the permanent use of arsenic, infiltrations diminish, elastic fibers disappear from the expectorations, the strength improves, and the body-weight increases.

These beneficial results do not occur only in the incipient stages of phthisis but also become manifest in later stages.

Nevertheless, there are limitations, and Jacobi says that he has almost always been disappointed in the action which Buchner claims upon hectic fever. In fact, it has become his rule not to prescribe arsenic at all while fever is very high, but to return to it as soon as the temperature has a tendency to become more normal. By acting upon this plan, he very often had the satisfaction of improving the condition of very doubtful and far-advanced cases.

The dose ought not to be large. Nausea, colic, diarrhea, edema of the eyelids are temporary contraindications to the continuation of the use of arsenic. A dosage of 1-15, 1-10, and up to 1-6 of a grain of arsenous acid daily suffices for an adult, if the drug is to be continued for a protracted period. In order to render it less liable to give rise to disagreeable symptoms, a little opium may be administered in conjunction. In most cases of incipient phthisis, this combination is agreeable and useful. In persons showing diarrhea at an early period, this joint administration is particularly a happy one.

Arsenic will produce a rapid proliferation of cell-membrane and interstitial tissue, which will fortify the general tissue and encapsulate the tubercle bacillus; but, as its action is to be persistent, small doses must be given continuously.

The effect of arsenic upon growth in general is marked. Adipose tissue, muscle, bone, periosteum, and connective tissue will increase; blood and hemoglobin probably are

affected in the same way; nitrogen is retained in larger quantities, albumin increasing in the whole organism.

Arsenic has no therapeutic effect unless combined with oxygen (in contrast to phosphorus, which has its effect in the bone as a free, uncombined element), and, in order to prevent its effect upon the gastric glandules which have been known to become atrophic during its use, some hydrochloric acid should be given regularly, or else black pepper, in the shape of Asiatic pills, be associated with the arsenic, for its acid-producing action.

Dr. Jacobi quotes a communication by Robert Brunow, who had made animal-experiments on the effect of arsenic in combination with guaiacol, in which the rabbits that received the drug resisted virulent tuberculous infection and even gained in weight, while the untreated controls perished of pulmonary tuberculosis seven weeks after inoculation.

The influence of digitalis is exerted in pulmonary tuberculosis the same as in other conditions. It contracts the heart and the arteries, increases blood pressure and nourishes the tissues, including the heart itself.

Digitalis should be avoided in acute inflammation only or in those myocardial changes which bear no strain. Cumulative action need not be feared if given continuously for a long period of time, provided the doses are small.

Digitalis will be found efficient in chronic anemia and chlorosis, for its tonic effect, in connection with arsenic or iron, when the circulation requires stimulation.

Dr. Jacobi concludes his paper by saying that it is a grave mistake to believe that a patient having tuberculosis should be directed to rely on air, rest, and food, to the exclusion of drugs. He maintains that socalled symptomatic drugs, such as camphor, opiates, and so on, are helpful and indispensable; and he further asserts that arsenic should be given for months and even years. He never treats chronic pulmonary tuberculosis without it, or seldom gives it without a small dose of digitalis, and never without a guaiacol salt.

THE TREATMENT OF INFLUENZA

The advent of real, old-fashioned winter is accompanied by a recrudescence of the influenza that has lingered persistently in our cities for many years. It has not been so many seasons since a distinguished therapeutist, reviewing the methods successively popularized—Raspail's camphor lotion, quinine, acetanilid, ammonia, *et al.*—came to the mortifying conclusion that as yet we had developed nothing that controlled or even materially influenced for good the progress of this malady. "Treatment" served to amuse the patient and fool his doctor. The essential feature of the clinical picture, the overpowering weakness, was not even attacked by any of the therapeutic agents suggested. All these were of the "try it" order, with scarcely the ghost of a reason for their employment advanced.

One very curious fact was developed, that this weakness extended to the patient's reaction against remedies; and even the tonics that seemed especially indicated could not be taken in large doses. Half a milligram of any salt of strychnine is a small adult dose, but the victim of grip was apt to display disquieting tendencies toward collapse if this dose was exceeded, or repeated within an hour. This has led many to sustitute the weaker alkaloid brucine, and to administer it in similar doses, repeated every half hour until the pulse indicated the maximum benefit derivable therefrom.

Another remedy that has been warmly recommended is the hydroferrocyanide of quinine. Lately I gave it a trial because the combination of two tonics seemed apt. Having a vial of granules, each a milligram, I gave these, one every hour, and had decidedly good results. Replenishing my stock with granules of a centigram each, my next case was a failure. No special benefit followed and the patient seemed irritated or disquieted by the drug.

Now here comes one of those unexpected experiences that mark the history of influenza. Experimenting with calx iodata, I gave it to my influenza patients in doses of two centigrams every fifteen minutes. The effect seemed more decidedly remedial than that of any remedy or combination I had previously tried. Later, Dr. Abbott, who, being so constituted by nature, believes in using the sledgehammer, if necessary, to knock out his pathologic enemies, urged the use of calx iodata in daily dosage of eight to sixteen grains! I tried this, fully expecting to find these large doses unsuitable. But they were borne without any difficulty and the effect on the malady was quite decided—far better than that of the small doses.

Influenza reminds me of an experienced friend's rule for working the stock market—make up your mind the way prices are going, and place your money the other way.

All the same, there is a dynamic power behind the minute dose very rapidly repeated that is only appreciated by those who have rendered themselves familiar with the method.

You are disappointed? Do remember, if you lose heart about your work, that none of it is lost. That the good of every good deed remains, and breeds, and works on forever; and that all that fails and is lost is the outside shell of the thing, which perhaps might have been better done; but better or worse has nothing to do with the real inner good which you have done.

—Kingsley.

THE ENGLISH STRUGGLE

Europe watches with interest the battle between Lloyd George and the British medical profession. The new law provides for all employees earning less than $800 per annum, on payment of a small weekly amount, free medical attendance in case of illness or accident, and an allowance, until cured, of $1.25 to $2.50 per week.

But to care for the sick it is necessary to have doctors. On this point Lloyd George is learning something. He could not compel the English physicians to give their services gratuitously to the wards of the State, and he entered into negotiations with the British Medical Association, proffering the physicians the sum of $1.12½ per annum for each of the assured persons. About seven-eighths of the members refused the offer. The annual stipend was raised to $2.12½, but when submitted to vote this was rejected by a majority of 182 to 21. The objection was not to the recompense but to the measures of control demanded by the Government. The physicians were to be submitted to the surveillance of the municipal councils, which were to make detailed reports to the ministry of the manner in which the duties were fulfilled. This they believed to be incompatible with the free exercise of a liberal profession.

The result seems to be a split in the Association, for the ministry is going ahead and making terms with those who are willing to accept them. This is being done in the cities especially, while the conservatism of the country doctor holds him aloof from the revolutionary innovation. Physicians are contracting directly with the assured class to supply them medical attention, without drugs, at the rate of $2.12½ per annum.

All of which seems decidedly amusing to the opposition press, which propounds this query: How can an end be put to Lloyd George's nightmare?

Nevertheless, this matter is going to grow, and the method will prevail. Some time ago this journal suggested a mode of changing the relations of the profession with the public, by which the doctor should receive a regular salary from his patients and devote his energies to the prevention of disease. Some features of the proposed plan have been taken up by the health officers of Indiana, who purpose to make every doctor an officer of health, each for his own limited district. The matter is under discussion, and in some form will prevail, because it removes the difficulties of the profession, especially poverty, and is for the benefit of physician, patient and public. But nobody familiar with the innate conservatism of the medical body expects to see any such revolution accomplished very soon or without long and acrimonious discussion.

Lloyd George will carry his point, because it is in accord with modern conditions and needs. More and more of the doctors will capitulate and come to terms with the Government, until the remainder will be forced, in self-defense, to accede.

I shall arrive! What time, what circuit first,
I ask not. But, unless God sends his hail
Or blinding fireballs, sleet or stifling snow,
In good time, His good time, I shall arrive.
He guides me and the bird. In His good time.

—Browning.

AMEBIC DYSENTERY AND EMETINE

The treatment of amebic dysentery by ipecacuanha and its alkaloids has received fresh impetus from the work of Leonard Rogers in Calcutta. In *The Lancet* for October 19 last, there is another contribution from this distinguished clinician.

In the examination of the stools of patients with amebic dysentery he adds one drop of a 1-percent solution of methylene-blue to a piece of dysenteric mucus, which stains the pus and epithelium at once, the amebæ resisting the stain for a time and retaining their motility. Without delay he examines with a lower power (1-2-inch), using a 1-6 lens to verify the find. The protozoons will be absent if full doses of ipecacuanha have been given previously.

In treatment, Rogers employs emetine hydrochloride, giving 1-2 grain hypodermically once or twice a day. This rapidly relieves the pain and tenderness and stops the fever. If suppuration has not begun, the leukocytosis also ceases and the patient enters upon convalescence. Abscess of the liver is denoted

by continuing leukocytosis. The pus should then be aspirated and a grain of emetine thrown into the cavity. Injections of emetine may be requisite for some days to kill any amebæ remaining; or, if the abscess is large, aspiration may be repeated.

A comparison of results in cases where ipecacuanha was given and of others in which emetine was employed showed a decided superiority of the latter in percentage of cures, lower mortality and shorter time required for effecting the cure. The mortality in the former was 34.6 percent, while under emetine there were no deaths among nonmoribund patients. The average stay in hospital for the ipecac cases was 16.4 days, for the emetine cases, 7.2 days. The stools became free from blood and mucus in 11.4 and in 2.35 days, respectively. The average dose required of ipecac was 406 grains, of emetine, 2 grains, corresponding to 180 grains of ipecac.

For adults Rogers now employs emetine hydrochloride in doses of 2-3 grain twice a day for two days, then once for a day or two more. When the hypodermic method is inconvenient he gives 1-3 grain by mouth, which produces no material sickness, while giving more favorable results than when ipecac itself is taken by the mouth. The action is slower and far less effective, though, than when the hypodermic method is used.

In the only two instances in which apparent relapses occurred, examination showed the complete absence of amebæ; but in one the Shiga bacilli proved the cause of death. There was, therefore, a permenent cure in all the patients treated.

The older readers of CLINICAL MEDICINE will recall the frequent recommendations in these columns to use emetine in dysentery. To them, the treatment presents no novelty, but its adoption by distinguished clinicians like Rogers is a significant forward step.

There is only one cure for the evils which newly acquired freedom produces, and that is more freedom. When a prisoner first leaves his cell, he cannot bear the light of day. But the remedy is, not to remand him to his cell, but to accustom him to the rays of the sun. The blaze of truth and liberty may at first dazzle and bewilder men who have become half blind in the house of bondage. But let them gaze on, and they will soon be able to bear it.—Macaulay.

FEW DRUGS OR MANY?

Not very long ago we heard many doctors make the silly boast that they could practise medicine with a very few drugs. The acme of perfection in this class seemed to be reached by one old chap who had reduced his therapeutics to just two remedies—"salts" and opium.

Maximilian Schulman (in *The N. Y. Medical Journal*, Oct. 5, 1912) calls the bluff of these men, and he does it so effectively that we conclude he must be a reader of CLINICAL MEDICINE.

Dr. Schulman contends that there are a very few real therapeutic nihilists who actually have lost faith in therapeutics. Possibly, though, we have never met one in whom this pessimism was not attributable to ignorance—or liver.

Another class comprises the men who are constitutionally antagonistic to whatever may be the belief of the man they are talking to.

His third class consists of those who seek an excuse for laziness. They know nothing and make no effort to learn.

One of these drug-nihilists once asserted that he could get along well with only six drugs. Inquiry raised his list to ten, and even classing all preparations of a given metal as one, the indispensables, upon scrutiny, grew into a lengthy catalog.

Dr. Schulman goes on to enumerate the strictly official drugs which no physician could dispense with. His first group, specifics, contains five—quinine, mercury, thyroid gland, diphtheria antitoxin, and antimeningococcus serum. We should, assuredly, add calcium sulphide against gonorrhea and pilocarpine against sthenic erysipelas.

Group B, "near"-specifics, consisted of nine drugs; namely, aspidium, santonin, salicylates, colchicum, iron, arsenic, iodides, digitalis, ergot.

Group C, respiratory, contains six drugs, viz., menthol, antimony, ammonium chloride, creosote, codliver oil, calcium lactate.

Group D, digestive, six drugs: hydrochloric acid, soda, magnesia, bismuth, capsicum, oil of turpentine.

Group E, cathartics, four drugs: croton oil, castor oil, magnesium sulphate, cascara.

Group F, emetic, one: apomorphine.

Group G, stimulants, five: ammonia, camphor, caffeine, strychnine, epinephrine.

Group H, vasodilators, three: nitrites, alcohol, chloral.

Group I, sedatives, five: antipyrin, belladonna, bromides, trional, aconitine.

Group J, opium (class by itself).

Group K, anesthetics, three: ether, chloroform, cocaine.

Group L, antiseptics, eight: boric acid, copper sulphate, iodine, hydrogen dioxide

silver, alum, betanaphthol, hexamethylenamine.

Group M, skin remedies, three: zinc, tar, chrysarobin.

Thus we see listed fifty-nine remedies, and, yet, the writer has not mentioned calomel, ipecac, rhubarb, colocynth, or any diuretic, diaphoretic or vasoconstrictor. Indeed, so many of our most valued remedies are omitted that the list might easily be doubled.

For our part, we stand at the opposite pole; we require many remedies. Two carrying cases, each containing 100 vials, are insufficient to hold all of our remedies, and, yet, there are only six compounds in the list. Each year sees additions to our stock as we learn to make nicer discrimination between allied remedies and to fit them more exactly to the varying conditions presented by patients.

Thus, while we rely upon strychnine as a general tonic, inciter of the vital functions and as strengthening the central control, we prefer the closely allied brucine, because of its local anesthetic property in case the stomach is irritable. In old paralytics also we have learned to look for more benefit from thebaine after strychnine has exhausted its usefulness. Further study will surely disclose uses for morphine, gelseminine, calabarine, and other members of the strychnine group. So of every other group of drugs.

The therapeutist of the future will go on multiplying his resources as he learns to differentiate more accurately the pathologic conditions and the powers of his drugs.

Meanwhile Dr. Schulman has done good service in demonstrating the falsity of the assertion in question so frequently made.

MORPHINOMANIA IN FRANCE

France is becoming aroused over the necessity of coping with the spread of the habitual use of opiates. *Le Matin* urges the need of more stringent legislative action controlling the sale of the habit drugs. On the front page of its issue of December 27 this periodical displays a cut representing a victim, which displays his emaciation and the lesions resulting from numerous hypodermic punctures. The greater disastrous effects of the alkaloids taken in this way are insisted upon. While opium introduces itself insidiously by the respiratory and digestive paths, "its terrible children" penetrate by effraction, by puncture. It circulates with the blood wherever this goes. Reaching the central nervous system, it seizes upon it and overwhelms it.

Prohibitive measures to protect these unfortunates have proved a "degrading and lamentable failure." Since 1846 the sale of these poisons has been prohibited except upon the prescription of a physician, signed and dated, and such a prescription can not be refilled. But the law seems to be ignored. *Le Matin* only needs to demand its enforcement.

"Though I have the gift of prophecy, and understand all mysteries and all knowledge . . . . and have not charity, I am nothing."

IN THE SICK-ROOM

Nothing is gained and much that is very valuable is wasted by allowing ourselves to become nervous in the sick-room.

Although we may consider a person too ill to be aware of what is taking place about him, he is sometimes fully cognizant of the merest trifles and always more or less susceptible to any and all things going on. For that reason, conversation about the condition of the patient carried on in whispers or in a mysterious manner should be avoided, and an air of quiet cheerfulness always be maintained.

Nothing is so annoying as to be continually asked if we do not wish the pillows changed, the bed-clothes straightened, the blinds closed or opened, some nourishment brought, or any other small details attended to. Better, by far, to see for one's self, and do so quietly without disturbing the patient. Particularly if they are disposed to sleep, do not at once get a newspaper of the kind that has the greatest possible amount of rattle in it and seat yourself in a rocking-chair regardless of the effect it may have upon the nervous condition of your friend.

When it is time for the nourishment, the medicine, be prompt to give it, but always without talking it over too much, and if it is the bitter cup that is to be prescribed, have something agreeable to follow, and a cheery word. If it is the food or broth, have it prepared outside the sick-room and brought in quietly, and, above all, in an attractive form; bearing in mind that a little, daintily presented, will be much more acceptable and partaken of with more benefit than a larger quantity. An invalid oftentimes is better nourished by partaking of a little substance at short intervals, and the manner in which one is cared for has much to do with one's improvement.

Leading Articles

Roberts Bartholow: A Great American Therapeutist

A Sketch of His Life and a Study of His Work

By GEORGE F. BUTLER, A. M., M. D., Chicago, Illinois
Professor of Therapeutics, Chicago College of Medicine and Surgery; Author of Butler's "Materia Medica and Therapeutics"

THE middle of the nineteenth century was a crucial era in many respects. It was pregnant with many great things. It has been said that "the darkest hour is just before the dawn." Early in the fifties a multitude of subjects as well as many phases of many subjects were veiled in darkness. When we look back upon those days and reflect upon the darkness that reigned, regarding things medical as well as others, we sometimes wonder, as now we stand in a greater light half a century later, that the conditions were so adverse to true progress and growth as they actually were at that recent period.

Owing to the darkness that still enslaved men, extreme narrow-mindedness in the practice of medicine prevailed among the membership of the regular school; and I may say this as a regular practitioner myself, and yet keep within the bounds of professional etiquette. The more cultured and informed a man may be—must be if he is to be a well-equipped practitioner—the more liberal he should be in his attitude toward some of the phases and practices outside of his own restricted sphere.

This is the attitude that I feel I must assume in a study of that product of medical growth and development that manifested itself first in those middle-of-the-century days just now referred to, namely, Dr. Roberts Bartholow. Cincinnati was particularly strait-laced and narrow in a medical way in those days; and here it was that young Bartholow first came into public view. This fact possibly explains why he attracted so much attention from the start—he, a man of infinite mind and broad comprehension, and yet restrained from too much dallying with liberal notions by the ethics of the school to which we all are bound. At that time Eclecticism had a considerable following in the city of Cincinnati, and a following that was more than ordinarily intelligent. Thus it was that here a regular practitioner necessarily was put on his mettle far more than if the adherents of this offshoot from regularity had been ignorant and presumptuous, as so often happens in these medical developments "on the side."

This was where Dr. Bartholow found himself upon his entrance into medical life in Cincinnati. Previous to this, in order to study nature at first hand as a young surgeon, he had joined the army and accompanied it into the far western territories. Four years of camping in the wilderness, next to the heart of nature, and studying with the enthusiasm of youth, gave him wide and valuable experience in handling fevers and gunshot wounds; while no sooner had he returned from this expedition, than the war of the Rebellion broke out, which gave him three years more of invaluable medical and surgical experience, an experience acquired in the hardest of all schools.

Bartholow Becomes a Teacher

By this time Bartholow had left the middle of the century behind, and in the winter of 1863–64 he was appointed professor of chemistry in the Ohio Medical College. It was at about this time that he first gained national reputation by his published articles on potassium bromide and on ammonium bromide. About the same time he began to see "the limitations and narrowness of medi-

cation by authority" and began to investigate the indigenous vegetable remedies such as hydrastis, using them occasionally in his practice. Nevertheless, he did not consent for a long time to associate with or consult any socalled "irregular."

Already he held some advanced views about sewerage, ventilation, cholera, and so forth, which disturbed the conservative, rather drowsy Academy of Medicine; but the cholera epidemic in Cincinnati, in 1866, showed him to be the right man in the right place and served somewhat to awaken the conservatives. By means of *The Clinic*, the medical journal he had established, he aroused the sleepy, conservative members of the profession still more, the journal affording opportunity to give utterance to his views in a trenchant way.

Dr. Bartholow's Literary Work

While engrossed for more than a score of years in his various medical duties, Doctor Bartholow was sedulously garnering material for his great work, his "Materia Medica and Therapeutics." This was published in 1876 and created a veritable sensation in the medical world, besides being the cause of his being called to a chair in Jefferson Medical College, Philadelphia, and offered a position on the staff of the Philadelphia Hospital. His next work was a volume on the practice of medicine. After the appearance of this book he joined the staff of *The Medical News*, of Philadelphia. He retired from college work in 1893, when he was made an emeritus professor. His "Treatise on the Practice of Medicine" went through many editions, and was even translated into Japanese.

Dr. Bartholow occupied many official positions, among which the following were the principal ones: professor of medical chemistry, and afterward professor of practice of medicine in the Medical College of Ohio; Fellow of the College of Physicians, of Philadelphia; honorary member of the Royal Medical Society of Edinburg, and of the Society of Practice of Medicine, Paris; professor of materia medica in the Jefferson Medical College. Mount St. Mary's College bestowed upon him the honorary degree of Doctor of Laws.

The Catholicity of Dr. Bartholow

It is not too much to claim for Doctor Bartholow that, owing to his researches and the knowledge he thus gained as well as to his steadfastness in maintaining his attitude and standing in the regular school, we of the regular school have at our command many more drugs than we otherwise should have. A man less balanced than Doctor Bartholow, after his fruitful investigations into the merits of the drugs used by the Eclectics, would have joined the latter, and thus have nullified his potentiality for good. But he had the bravery to employ those remedies and by his influence to encourage their use, with the happy result that our knowledge of drugs became richer and our means of fighting disease fuller and more comprehensive.

This is only one of the many lessons we learn from the catholicity and forethought of a mind raised far above the ordinary level. When a man thinks twice before he acts, he proves himself a real power in the world of thought. Iconoclasts are picturesque, it is true, but generally they do a world of harm. Builders are the greatest need in the world, not those who destroy. He who would destroy must first have something better with which to replace that which he annihilates.

In a review of the life of Doctor Bartholow, issued a few months ago, I observe that he is referred to as an iconoclast. Nothing could be further from the truth. The gardener who trims his vineyard is anything but an iconoclast. He does not destroy. He trims, not to destroy, but to revivify. Thus Bartholow found much to trim away in his outwork at the real beginning of his career in Cincinnati, and he used intelligence in doing it; with the result that the regular school was benefited, whereas, if he had done otherwise, he would have immolated himself on the altar of Eclecticism without any good having resulted in either direction.

His Faith in Drugs

Bartholow may be said to have had but one aim and one object in life, and that was the discovery of medical truth, and its exact scientific achievement in combating disease. His faith in drugs was unlimited. The only question was as to their value and their exact application and their limitation as well. His mental capacity was great and his belief in himself marvelous, this giving rise to the suggestion which has been made that he felt that he was to be the leader in medicine in America. And, in truth, as near as there could be such a master and leader, he was that. He was fearless, and had no mercy for a weakling either in thought or action. His powers of sarcasm were almost volcanic, as has been stated by those who had met him in argument, and he never came off second best.

Doctor Bartholow's work in Cincinnati was as an awakening, and in Philadelphia it was as a culmination. He abhorred provincialism in medicine; and wherever he practised and wherever his books have been read, the profession has been benefited thereby. The regular school may well be proud of this great man, because he made it broader and more catholic. But other schools may also join in the acclaim, for his efforts tended to dignify the general calling of medicine with the one aim of fighting disease, not of glorifying any one school at the expense of all others. The regular school was made more regular—if that were possible—while the Eclectics, for example, were honored, in a way, by having their choice remedies taken over by the regular school because of the liberal and independent course of Doctor Bartholow.

The Need for Broadness in Medicine

There is too much narrowness of mind in the world. There is no need of it. It does no good. In very fact, it does harm. He who discovers a new remedy or adopts one in vogue among those of a particular school and gives it regularity is one of the world's benefactors, and should be rated as such. Roberts Bartholow was such a physician. The world is the better, and broader, and freer, and healthier because of his life and his work—his unification and conservation of the forces of the work of medicine by which disease is baffled and health is assured. His books and his papers show his liberality of mind; and, yet, it is a liberality of which every regular physician should be proud, because it raises his profession above the poise of provincialism and gives it standing and rank as a world-science.

In all probability there is no other one thing which stamps greatness on the name of Roberts Bartholow in ineffaceable letters more strongly than his ability to do in Cincinnati during the sixties what he did do. It was in an age and in a community where to recognize an "irregular" in any way was to commit professional suicide on the part of the regular physician; and, yet, Bartholow deliberately brought into regular practice remedies which up to that time had not been recognized and he was great and strong enough to do it, and the remedies are recognized today.

That is the kind of "regular" of which the world was in sore need in those days. There are more of that kind today, thanks to the influence of Doctor Bartholow; and the regular school, of which I am proud to be a member, is today a progressive society the end and aim of which is the curing of disease and to benefit humanity. It no longer is in danger of getting stalled in a rut of narrowness from which one can escape only with great difficulty, if at all.

I do not feel like closing this brief survey without making a few extracts from a letter recently received from Prof. John Uri Lloyd, the well-known manufacturing chemist and author of much valuable medical literature, who resides in Cincinnati, the scene of Bartholow's early life and who was thrown into contact with him much in his early days.

A Letter From Professor Lloyd

"I well remember Dr. Roberts Bartholow, who as a young man began his professional career in the city of Cincinnati," writes Professor Lloyd. "He was then a struggling, unknown young physician possessed of an inordinate amount of energy and of an extraordinary degree of therapeutic independence. In those days, the lines drawn between the "regulars" and the "irregulars" was exceedingly close. It was as much as the reputation of a physician of the old school was worth to be even seen in conversation with a member of an irregular school. This was especially the case in Cincinnati, where the Homeopathists were exceedingly strong, and where was situated the headquarters of the Eclectic school.

"I need not say that the remedies employed by the regular school of that date were exceedingly limited in number. Perhaps on the fingers and thumbs of the two hands one could name all the important remedies employed for the majority of cases to which a physician might be called, these having rolled down the centuries from the days of European medieval medication. Chief among these were blue mass, calomel, opium and its salts, cinchona and its alkaloids, the cantharides plaster, tartar emetic, and the harsh cathartics, such as the compound cathartic pill and similar materials, like jalap, colocynth, and the milder cathartics, rhubarb and senna. Of course, the European drugs of a harsh description were employed more or less after the course of such as these has been instituted, or even in support thereof; conspicuous among which may be mentioned belladonna, digitalis, hyoscyamus, and other energetic remedies. Such preparations as taraxacum and gentian were favorites, but employed practically as excipients in the making of pills and in compounds, where they merely served to give zest to the mixture, and

presumably exerted little influence other than of a tonic nature.

Bartholow as a Teacher

"Into such as this came Roberts Bartholow, who remained a student of medicine after having left the College of Medicine. In the Ohio Medical College, where I attended his class in chemistry in the winter of 1863–4, about which time he made his great national reputation by his articles on potassium bromide and on ammonium bromide, with open eyes Doctor Bartholow saw the limitations and the narrowness of medication by authority. Then it was that I, being a drug-clerk in the principal retail drugstore of Cincinnati —that of W. J. M. Gordon—and a pupil of his in the Ohio Medical College, became a favorite of Professor Bartholow as a student in pharmacy."

"Before Professor Bartholow left Cincinnati for Philadelphia, it may be said, without fear of contradiction, that in his own school in Cincinnati there had arisen a feeling of rivalry, perhaps of jealousy, among some of the most talented Cincinnati physicians. Partly was this due to certain innovations that could not be tolerated by some of his colleagues, one of these being the physiological investigations of drugs by the destruction of animal life. And in some directions, at least, Bartholow should have been criticized for his indifference to animal suffering.

"Robert Bartholow, in his work in Cincinnati, was indefatigable, all day long hurrying from one patient to another, giving his lectures in the college, and sitting up at night till all hours studying, writing, and experimenting. All this to him was but a pleasurable duty.

"Let me, in summing up these brief remarks on Professor Bartholow's personality, record that, as I remember Bartholow—my teacher, my ideal in work, who early inspired my enthusiasm in pharmacy—he was energetic, strong, liberal to a degree in one direction, dogmatically narrow in another, heroic in the face of vicious attacks by his professional brethren, and of a gentle spirit in it all (although cruel in his professional duties, when it came to physiological investigations), wrapped in his love for his ideals as concerns professional advancement; a strong man whose impress the medical profession is yet unconsciously feeling, and advanced thinker, and conversant with much that is considered now as a something new in physiological investigations; a man whose services were, in his prime of life, lost to his country through his indiscretions in the direction of his own strength of body."

Little need be added to this honest opinion of one who was fortunate enough to be associated with him in his crucial days, except to repeat at the close of this article that the world was made better and the regular school of medicine was made broader by the life and labors of Doctor Roberts Bartholow.

The Canned-Food Industry

And Some of the Fraudulent Practices in It

By CHARLES F. LYNCH, M. D., Chicago, Illinois

EDITORIAL NOTE.—This is the third paper of Dr. Lynch's series upon "Foods and their Adulteration." Other interesting and informing papers will follow in succeeding issues of CLINICAL MEDICINE.

FEW industries in our country have shown such enormous growth in the present century as has the canning trade. From a very small beginning a few years ago, this great business has grown in volume and value of products until now it stretches from ocean to ocean and from the great lakes to the gulf; the annual value of the output running well up into the hundreds of millions. Practically every article of food used on our daily table can now be obtained from the cannery; meats, fish, fowl, milk, soups, vegetables, fruits, and in fact every variety of food that is edible in a cooked state forms a legitimate part of this enormous industry. Only those articles which are eaten only in the raw state, such as lettuce, for instance are at present exempt from entrance into the canned-goods traffic.

That this wide expansion in this trade has been of enormous value in increasing the variety and palatability of our food supply

is beyond question. The cannery has, indeed, performed a most valuable service, and especially is this true in the case of the city dweller of moderate means, to whom a few years ago canned fruits and vegetables were a delicacy to be enjoyed by those only who were so fortunate as to have a good old "Aunt Mary" or "Grandmother," down on the farm, who would bring a few jars of her famous preserves with her when she came to spend a few days in town. Now the man of even limited means can procure many of the delicious fruits out of their season and in most palatable form at a comparatively small price.

The Unscrupulous Canner

Unfortunately, with the increased demand and the development of keen competition, there entered into the field many unscrupulous dealers who, in order to swell profits and pay dividends on inflated stock issues, resorted to multitudinous adulterations to cheapen their products and defraud the consumer. Commercial chemists lent a willing hand to the not overparticular dealer and showed him how he could take green, unappetizing and unwholesome fruits and, by the magic of adding small quantities of inexpensive dyes, convert them—to the eyes of an unsuspecting public—into rich, luscious, marketable products; with enormous profit to themselves, as raw fruits of this kind could be bought exceedingly cheap. Of course, no thought was entertained as to the possible effect upon the gastrointestinal tract of the defrauded consumer. A little thing like that could not be considered where such enormous profits were in sight.

Absence of official supervision led, in many instances, to the development of most highly unsatisfactory sanitary conditions in these establishments, and, while such canning plants are now comparatively few in proportion, a few years back many of them were in a most revolting condition, and under the management of individuals who had not the faintest conception of what is essential in the preparation of a wholesome product intended for human consumption. Still, although great changes have been effected in the past decade under the energetic efforts of federal and state inspection bureaus, the extent of this supervision is as yet entirely inadequate and many of the canneries at present are still unsatisfactory.

The process involved in canning foodstuffs is remarkably simple, but there are a few underlying principles that are essential to turning out first-class goods, and these may be stated as follows:

1. The fruits or vegetables selected for canning purposes should be only of the best grade, without bruises or signs of decay, and free from insects.

2. The fruit should be treated just as soon as possible after gathering, to prevent deterioration.

3. The product must be heated sufficiently to insure complete and thorough sterilization. The temperature and length of exposure required varies for the different products, some being much more difficult to sterilize than others. Among those that are particularly difficult is corn. Those of us who have lived on the farm will remember how difficult it was for our grandmothers to put up corn so that it would not spoil.

In our modern large canneries this process of sterilizing has been brought to a high standard of perfection, and, by means of vacuum-retorts, it now is accomplished under a pressure of from two to three atmospheres, this insuring complete destruction of all contained organisms. In other plants a brine-bath is employed for this purpose. The normal finished can, after sealing, shows concave ends. This is due to the exhaustion of the air from the cans, and it constitutes a valuable sign for detecting spoiled goods; for in those cans where fermentative changes are going on there is generation of considerable amounts of gas, which causes bulging of the ends of the cans—the socalled "swellers."

Canned Corn

Perhaps the largest single branch of the canning industry is the canning of green corn. More than 500,000,000 cans of this product are put up every year by American canneries. Canning establishments devoted exclusively to the canning of corn are found all over New England, New Jersey, Maryland, New York, Ohio, Indiana, Illinois, Iowa, and Wisconsin. The variety of corn used for this purpose is a special succulent Indian-corn, commonly known as sweet-corn.

Strangely enough, canned corn is but little known in European countries, remaining essentially an American article of diet. That it is popular in this country is amply attested by the enormous annual consumption.

Sophistication of Canned Corn

The old, old story of tampering, for purposes of cheapening cost of production and deceiving the consumers, is repeated in the case of this common food-product.

One of the early common practices of the corn sophisticator was the bleaching, or whitening, of the corn by exposing it to the fumes of burning sulphur or treating it with sulphite or the bisulphite of sodium or of potassium. The chemical reaction resulting produced a marked whitening of the article, adding to its attractiveness in the eye of the consumer; but it also resulted in the deposit in the product of considerable sulphurous acid. Canners assert that this practice has now been abandoned, which is to be hoped is the case, since it is wholly indefensible and cannot be other than harmful.

In the regular process of canning a considerable percentage of cane-sugar is added. When the coal-tar chemists brought out their magic sweetener saccharin, they found a market in the hands of men only too ready to avail themselves of this great money saver.

That saccharin is undesirable in foods has been determined by the highest food-tribunals in the country, and it is to be hoped that official action will prevent its further use in any form of preserved edibles. It is not only an undesirable constituent in itself, but in substituting it for sugar *the products are robbed of a valuable food-substance by* supplanting it by a drug which undoubtedly must be classed as undesirable.

It has been claimed for saccharin that it is a most valuable substitute for sugar in those who on account of diabetes or other condition cannot assimilate sugars. This no doubt is true; but if the physician desires its use in these conditions he will prescribe it without consulting the manufacturer.

In many instances ordinary field-corn has been substituted for the more palatable sweet-corn, the deficiency in natural sweetness being supplied by a more liberal use of sugar or, often, saccharin, as the manufacturer saw fit. Another bad practice has been the addition of relatively large quantities of maize-starch in the process of canning, for the purpose of giving a rich, creamy appearance to the product. In this way an inferior article can be very materially improved in appearance. This practice is to be condemned, mainly because it is a deception, not because the starch is really harmful.

Without doubt the most dangerous source of contamination is the unsanitary conditions often prevailing in canning establishments. Many of these corn-canning plants have been found in most unsanitary condition and conducted with little or no regard to the protection of the product from contamination. This sort of thing is absolutely indefensible. It is impossible to put up a clean, wholesome food under such surroundings.

As stated before, federal and state inspection has done much to remedy these conditions, but there still is very, very much room for improvement. Every factory doing an interstate business should be under the constant supervision of a United States government inspector, the same as now obtains in the meat-canning industry. Every can of the goods should bear the stamp of inspection and approval by a federal inspector. This is the only way in which we can absolutely assure a pure product, and restore public confidence in these goods.

The cost of such an inspection system would not be excessive and might well be borne by the manufacturer, who could put a fractional charge on each can of goods sent out under inspection. If it is essential to surround our meat-canning industry with these safeguards, I see no reason why it is not equally important that these other products be likewise protected as to quality and purity.

Canned Peas

Second in importance to the corn-canning industry comes that of green peas. Enormous quantities of this vegetable are consumed every day in American homes. This industry not only is a large factor in our own commercial world, but Europe also contributes largely to our supply. Michigan and Wisconsin are notable producers of this vegetable.

Having been shelled from the pods, the peas, by means of sifting, are sorted into various grades of uniform size and this sifting not only results in improvement of appearance of the goods but also insures more perfect sterilization.

Fresh peas possess naturally a light-green color, which is due to chlorophyl. But this natural color rapidly deteriorates upon aging, thus leaving the peas of a whitish or pale-yellow color. The practice (probably originated in France) of imparting a lasting green color by adding sulphate of copper was an ingenious way to preserve the youthful appearance of the peas. The color thus imparted, however, is not the natural pea-green, but a much heavier, darker and duller hue. This addition of copper salts is wholly unnecessary, nor can it be justified by the claim of manufacturers that the copper enters into chemical combination with the vegetable, which renders it inert in the alimentary canal.

Our old friend saccharin has found purchasers among the pea-canneries as well as in other branches of the food-industry, and

here also its use is to be just as strongly condemned as in any other food-substance.

Peas should be canned while they are in a green, succulent state and should not be allowed to become too near mature before being put up. In some canneries, however, the more mature peas are also canned and put out under most fanciful names. These undesirable peas are to be had at a very low price, and the canners who utilize them put them through a course of soaking in brine before placing them in the cans. These are known in the trade as "soakers" or "soaked peas." On the shelves of the grocer, however, they appear all too often in very attractive cans and labeled "Extra Early June Peas" or with some other equally attractive name, a beautifully lithographed design showing a dish of the *small, sifted variety*. This is a rank deception and misbranding and such manufacturers should be made the object of vigorous criminal actions that would bring them to a realization of the fact that it does not pay to lie to the purchasing public.

These soaked peas are probably equally nutritious, but they are not as palatable as the small sifted ones; but, while they should be allowed on the market, it should be only if properly labeled. This would insure their sale at a price commensurate with their intrinsic value.

The presence of copper in canned peas may readily be detected by a very simple test. Place a small quantity of the peas in a dish, grind up into a pulp with a little water, add a few drops of hydrochloric acid and boil. Into the boiling mixture dip a clean knife-blade or wire nail; if copper salts are present a deposit of metallic copper will be formed on the bright iron surface.

Canned Peaches

Peaches are one of the most widely grown as well as most luscious of American fruits, and they enter largely into the canning industry. It is fortunate that relatively few adulterations are practised in this branch of the trade. Little or no resort is had to the use of artificial colors in the preparation of this fruit, while saccharin is rather undesirable, from the canner's standpoint, as these goods are wanted in a thick, rich, syrupy liquid such as is impossible with saccharin. Preservatives are also but little resorted to, as this fruit is quite easily sterilized and keeps well.

In recent years there have been advertised in a number of the cheaper farm and household journals of the ten- and twenty-five-cent class recipes for the preservation of cold-process preserves, so called. Most of these recipes called for the purchase, by the housewife, of some form of proprietary powder to be used in the preparation of the fruits that were to be preserved with little or no cooking, "thus preserving the natural flavor and color." This sounds very nice, indeed, as it eliminates a great deal of labor, saves time, and gives a more natural product. But when we go beneath the surface we do not find things quite so brilliant as they seem.

We find that these socalled preserving-powders are nothing more nor less than our old acquaintances, the chemical preservatives, masquerading in new, enticing clothes to delude unsuspecting housewives into using them. Not only are these preservatives as harmful in this form, but the directions given with these powders often call for the addition of the antiseptics in such enormous proportions that the effects are manifoldly more dangerous than in the relatively small amounts used by the commercial manufacturer. The advertising and sale of these powders through the United States mail should be prohibited, since the practice is worse than fraud, in that the purchaser is unknowingly led into using a harmful substance.

Canned Berries and Tomatoes

Canned berries have one added danger in the fact that these acidulous fruits have a particular power of attacking the tin of the cans, if they are not properly made to resist this corrosive action, and thus yield the salts of tin to the fruit. These added tin salts are exceedingly toxic and form a most dangerous source of poisoning. All cans containing any acid fruits should be carefully examined for signs of corrosion as soon as opened and all those rejected that show evidences of chemical action.

Another point in this connection is, that none of these fruits should be allowed to stand in the opened can for any length of time, as the presence of air aids in the chemical process going on.

Tomatoes are another fruit in which the danger of chemical action is pronounced, and tomatoes should be emptied from the can as soon as it is opened.

Canned tomatoes form a large percentage of the annual sales of our city merchants, and the popularity of this form of canned goods is on the increase. The cheapness of the product as well as the known physiological

action in aiding in keeping the tonus of the gastrointestinal tract up to par are large factors in the popularity of the tomato. There is comparatively little food-value shown on analysis, but the use of tomatoes as an article of diet is highly conducive to increased secretion and activity of the intestinal tract.

Increased popularity has led here, as in other goods, to increased adulteration, and the tomato has come in for its share of attention at the hands of the conscienceless dealer. These shrewd chemist-manufacturers are able to take unripe tomatoes and convert them into "high-grade luscious fruit" by the use of a convenient coal-tar dye. Saccharin, likewise, makes a ready substitute for sugar, and any tendency to deterioration due to lack of care in selection of the fruit or high cost of sterilization is readily overcome by a liberal allowance of a preservative. The resulting mixture of green fruit, coal-tar sugar, coal-tar dye, embellished with a masterpiece of the lithographer's art, makes a most profitable addition to the trade, one that should be highly appreciated by the purchaser.

Many of the frauds depicted above are being abandoned by honest dealers since they have been shown the danger of such practices in ruining the health of their customers, and probably more so since some of them have felt the strong hand of the federal and state authorities as an added persuader to respect the rights of their customers.

The work of inspection is not half begun, however, and but little can be accomplished until the consumer becomes thoroughly awakened to the importance of demanding and insisting upon a more thorough inspection, and carry this insistence to the point of demanding of their legislative representatives the enactment of more stringent laws and more adequate appropriations for the enforcement of the same.

It is the duty of the physician to warn his patients of the dangers of insanitary conditions surrounding the production of canned foods and to educate them to insist upon a more thorough and efficient system of inspection.

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[With all that Dr. Lynch says regarding the necessity of perfecting the sanitary conditions in our canning establishments we heartily agree. This writer is of the opinion, however, that the goods put up by reputable firms (and the best firms usually spend money to advertise) are clean, wholesome and safe. His statements regarding saccharin require some modification. First, the use of saccharin in food is now prohibited by federal law, and is, we think, practically abandoned in this country. Second, while the government has succeeded in securing the prohibition of saccharin, the evidence as to its harmfulness is not conclusive. It should be remembered that the Roosevelt Commission, consisting of such eminent chemists as Welch, Chittenden, and Long, decided unanimously that in the small quantities usually employed as a sweetener it was free from harm. The excessive use of sugar, with its proneness to undergo fermentation in the intestinal canal and set up gastric and bowel disturbance is known to be the source of much disease. Americans use more sugar per capita than any other people in the world. This excessive consumption has been called a "crime," and it needs no official encouragement. Personally, we think too much sugar just as dangerous as the little saccharin the average individual gets in his canned corn or peas—or did get under the old régime. The main thing is that the consumer should know what he is getting.—ED.]

The Therapeutic Virtues of Sparteine Sulphate

A True Heart Tonic, a Regulator of Heart Action, a Nonirritating Diuretic Suitable for Administration Hypodermatically as well as by Mouth. No Untoward By- or After-Effects

By GEORGE E. PETTEY, M. D., Memphis, Tennessee

EDITORIAL NOTE.—The following report of the author's clinical study of sparteine was prepared for his work on "The Narcotic-Drug Disease, and Its Treatment" (now in press), but with some slight alterations, is here presented to the readers of CLINICAL MEDICINE, *with the hope that this remedy may fill a vacant place in their armamentarium as it has in that of the author. It is confidently believed that, when the profession becomes fully acquainted with the physiological effects and remedial value of this drug, it will be esteemed by practitioners as one of the few indispensable remedies.*

II

WHILE sparteine is a remedy of the greatest value in the treatment of drug-addiction as well as in all other conditions requiring the support and regulation of the heart action, it is in pneumonia that it fills a place that no other remedy, or combination of remedies, fills equally as well. For, in this disease we have an overworked heart, high blood pressure, pulmonary and general venous congestion, and death results from failure of oxidation of the blood due to heart exhaustion. Sparteine counteracts the development of the latter condition more perfectly and does more to correct it after it has developed than any other drug with which the author is acquainted.

Sparteine decreases the frequency and increases the force of the heart action, imparting a reliable degree of tone to the heart-muscle. At the same time, by dilating the arteries and reducing blood pressure, it relieves the heart of its burden, thus enabling it to handle the volume of blood without laboring and to throw an ample current to the lungs, where the improved capillary circulation which it induces promotes abundant oxidation. And it does this without a single unpleasant, undesirable or hurtful effect. In fact, the only other effect of the remedy is one which, in pneumonia, is needed almost as much as the one which has just been described.

The power of the remedy to improve the arterial capillary circulation renders it a most certain and efficient nonirritating diuretic. In pneumonia, as well as in drug-addiction, its diuretic effect is a very helpful one. An instance from practice may illustrate its promptness, efficiency and usefulness in this direction.

Case 1: Sparteine for the Pneumonic Heart

A man (I. McF.), 65 years of age, was admitted to the sanitarium on February 8, 1900. In coming from his home, he had traveled a part of the way overland in a drenching rain and was wet and shivering from cold when he arrived. The patient had used crude opium habitually for twenty-seven years. He was put to bed after a hot bath and soon became comfortable. That evening he was given a thorough eliminating course, and by noon the next day his intestinal canal was well emptied. So far as could be seen at that time there was no ill effect from his exposure. The habitual opium was then withdrawn and the patient kept under the moderate influence of hyoscine for the next two days, during which time calomel in small doses was given, to stimulate the action of the glandular system.

On the fourth day of treatment, when it was sought to discontinue all narcotic drugs, the patient began to show signs of pneumonia and in a short time that disease was well developed. His condition was recognized as one of extreme gravity from the beginning, because of his age and feebleness and of the long-standing drug-addiction, as well as because of the large area of the lung involved. The temperature ran high and other symptoms were of corresponding severity.

The author had been accustomed to rely upon digitalis, strychnine, and whisky for support of the heart in such cases, and these

were freely administered, while the administration of an opiate was resumed. Yet, notwithstanding every effort made to support the patient, by the fourth day of the attack a fatal termination within twelve to twenty-four hours seemed inevitable. His pulse was 120 when he was reclining quietly, but the slight exertion of raising him to a sitting posture would increase the rate to 150. Respiration was 40 and labored, the face livid; in fact the general carbon-dioxide poisoning was rapidly developing.

The author had had some experience with sparteine prior to that time, but not enough to gain much confidence in it. Still, it was evident that other remedies were failing, and so it was decided to give that alkaloid a trial. Accordingly, 2 grains of sparteine sulphate was given hypodermatically, and this dose was repeated at intervals of two hours.

At the time of injecting the second dose a distinct improvement in the patient's condition could be seen and within six hours the change was very marked. The pulse had come down to 90 per minute and the volume and quality was very much improved; respiration was 30 per minute and much less labored; assumption of the sitting posture now increased the pulse-rate only 10 per minute, instead of 30, as before. The digitalis and strychnine then were discontinued, but no other change was made in the general treatment. By the end of the first twenty-four hours after beginning with the sparteine the pulse-rate was down to 70; and from that time on throughout the attack the pulse was held between 70 and 90, and the patient made an uninterrupted recovery.

For the first six days sparteine was given hypodermically in doses of 2 grains every two hours, and then the intervals were lengthened to four and finally to six hours. Its administration was kept up for three weeks altogether, by the end of which time the patient had gained sufficient strength not to require support.

After the administration of sparteine was begun it was depended upon entirely for control and support of the circulation, and it met these indications more perfectly than any other drug had ever done in the author's hands.

This experience led the author to make very free use of this agent and to study its action closely. During the twelve years intervening since that experience the author has used sparteine most freely and in a large and varied series of cases, and he is sure that it has enabled him to meet successfully many extreme conditions, which he could not otherwise have done. One of the most marked among these was an infant of six weeks, where there was failure of closure of the foramen ovale. This little patient was under the care of Drs. Jordan and Goree of Pine Bluff, Arkansas.

Sparteine in Cardiac Embarrassment in an Infant

At birth the child appeared to be entirely normal, but at six weeks of age it began to show signs of venous stasis, the bowels became torpid, and as the portal engorgement increased the heart action was more embarrassed and a real "blue baby" was soon the result. Physicians were called and the treatment begun. Calomel and other evacuants were administered, but without favorable results. Strophanthus and nux vomica were given in sufficient quantities to establish the full physiological effects of these remedies, but in spite of all treatment the condition of the little patient grew worse. The heart action became more rapid, the general venous congestion more marked, and the breathing extremely embarrassed.

The author saw the child on the third day from the development of the more marked symptoms, and it seemed to be beyond hope: the pulse could not be detected at the wrist, respiration was 90 per minute, and the entire body was blue from venous stasis. It did not seem possible for the child to live an hour longer. The sick baby was in the care of two of the most competent physicians in the city and their treatment was in accordance with the teaching of the best authorities, but no improvement had been made in its condition by anything that had been done.

The attending physicians extended to the author the courtesy of prescribing whatever he thought best; however, nothing seemed left for him to do than to give some soothing potion to lessen the little sufferer's agony of death. With that idea in mind, he administered 1-60 of a grain of heroin. At the end of half an hour the child was still alive, but in a more stupid state; breathing, while rapid, was attended with less effort and was shallower. At this juncture the author felt that, inasmuch as the child had not died during this hour, it would be wrong to sit idly by and do nothing; so he decided to give sparteine a trial.

Acting upon this thought, 1-10 grain of sparteine sulphate was administered, and in thirty minutes signs of improvement were

detected. Breathing became less labored, and by the end of thirty minutes more this and other signs of improvement were unmistakable. Two hours from the time of giving the first dose of sparteine, 1-20 of a grain more was given. At this time the respiration had decreased to 70 per minute, and the pulse could be detected at the wrist, although it could not be counted. In two hours more—or four hours from the time the first dose of sparteine was given—the respiration was 60, and the pulse, 150, and could be counted at the wrist. The deep-livid hue had given way to a bright arterial flush, resembling somewhat the flush from belladonna. The child nursed and then fell into a natural sleep for the first time in three days.

The improved circulation, with the attendant aeration of the blood, soon restored the infant's nervous system to its normal responsiveness and then the purgatives, which had lain dormant in the system for two or three days, began to act and continued to do so until the bowel was well emptied. This, of course, overcame the obstruction of the portal system, which was doubtless the cause of the original attack, and the child was practically well within twenty-four hours.

Sparteine in 1-20-grain doses at intervals of four hours was continued for a week, when the periods between the doses were lengthened to six hours; and this latter dosage was kept up for five months, when medication was discontinued. No further disturbance of the circulation occurred, and the little patient is now a strong, healthy child.

The only salt of the alkaloid sparteine (derived, as stated before, from cytisus scoparius, the tops of common broom-corn) on the market is the sulphate, and no doubt it is as satisfactory for general use as any other combination. It is readily soluble in cold water, and even slightly deliquescent, but if kept in stoppered bottles it maintains its dry, crystalline form. It may be administered either hypodermatically, by mouth or by rectum.

Two Grains Is the Proper Dose

In studying the action of any drug, the only rational course is to administer that drug alone, uncombined, in such doses and at such intervals as to establish its full physiological effects upon the system. After maintaining that effect for a reasonable time, if the physiologic impression or remedial effect sought to be made has not materialized, then one has reason to doubt the efficacy of the remedy. Confirmation of this experience by repeated trials would justify its entire rejection; still, until such a study has been made, no therapeutic agent should be said to be of no value.

Those who have employed sparteine according to the rule laid down hold it to be one of the most valuable therapeutic agents in our entire list, classing it along with remedies such as, for instance, calomel, quinine, strychnine, morphine. Those writers who consider it of little value place the dose at 1-30 to 1-4 of a grain; but these small doses are entirely insufficient and will disappoint anyone who may depend upon them.

The writer has made a careful study of this remedy, having used it in doses of all sizes, from the fractional grain up to 3 grains given at intervals of two hours. It was found, however, that doses of 2 grains given at intervals of from three to six hours would establish and maintain the full physiological and remedial effects of the drug in the case of average adults. When the effect of the remedy is urgently needed it is best to give 2 grains at once and to repeat that dose at the end of two hours; thereafter the same dosage may be continued at intervals of three, four or six hours, as seems indicated.

It Is a Reliable Diuretic, Especially After Operation

Sparteine is a reliable, nonirritating diuretic. This action occurs whether the remedy be given hypodermatically, by the mouth or by the rectum. The general improvement it induces in the systemic circulation (especially that of the capillary arterial circulation) extending to the kidneys necessarily would result in diuretic action; however, it seems to have a special selective action upon the renal circulation. Its diuretic action is marked, but it does not act as a diaphoretic.

Sparteine has been found very useful in postoperative suppression of urine. In discussing the paper Dr. Montgomery read before the North Carolina State Medical Association, at Raleigh, in May, 1904, the author called attention to sparteine as a reliable, nonirritating diuretic capable of being administered hypodermatically. Dr. Stuart McGuire was present and heard the discussion, and was induced to prescribe sparteine in such cases, ordering it in 2-grain doses. As a result, he reported, in *The American Journal of Surgery* of February, 1907, six cases of postoperative urine suppression in which, he feels sure, he would have lost his patients under his former

management but who were saved by a free administration of sparteine; he gives the entire credit for recovery to that drug.

This experience has brought Dr. McGuire into entire accord with the statements of the author, that the only reason why the drug is not in common use is because it has been tried in dosage entirely too small to be effective. Thus he says: "To get results, it [sparteine] must be given in doses of 1 to 2 grains, repeated every three to six hours." When so given, he continues, he has "repeatedly seen it slow a run-away heart and set in motion the pair of stalled kidneys."

Shock and Nausea Prevented By Sparteine

In surgical cases, sparteine is also of great value in preventing shock and postanesthetic nausea. Its power to sustain the heart action during the anesthesia reduces shock greatly, if it does not entirely prevent it. If the shock is avoided, postanesthetic nausea rarely occurs, provided the intestinal canal has been properly emptied before the anesthetic was given. The notes about two cases which follow are fairly typical of the series of forty consecutive cases in which the author prepared the patient for operation, in none of which nausea followed the anesthetic.

The first case was a hip-joint amputation; patient tuberculous; operation by Dr. Crisler.

The patient was prepared for operation as follows: Purged with pills consisting of calomel, 10 grains; extract of cascara, 10 grains; ipecac, 1 grain; strychnine nitrate, 1-6 grain; atropine sulphate, 1-50 grain; made into 4 capsules, one being given, on an empty stomach, at 4, 6, 8 and 10 o'clock p. m.; these followed next morning by 3 ounces of castor oil. Forty-eight hours later the same course was repeated. This was twenty-four hours before the operation. The patient was then put on 2 grains of sparteine, by the mouth, every three hours, and was given liquid nourishment up to within a few hours of the time of the operation. An hour before the time of the operation 2 grains of sparteine, and 1-4 grain of morphine with one 1-100 grain of hyoscine were given hypodermatically.

The patient went on the operating table with a pulse of 84. Ether was used, and the operation lasted one and one-fourth hours. During that time there was practically no variation in the rate or volume of the pulse, while at the completion of the operation the pulse was 88, full, strong, and regular. Just before the close of the operation 2 grains of sparteine was given hypodermatically, and the same dose was repeated at intervals of four hours for several days. Before removal, the patient was given one pint of saline solution by rectum and put to bed. No nausea followed, and shock was not perceptible. The patient was allowed water up to the time of operation, and he was given hot liquid nourishment, half a glassful, three hours after operation; this being repeated every two or three hours during the following day, when other nourishment was per-mitted.

The second case was an operation upon the cervix and gall-bladder. Operation by Dr. Max Henning. The patient was prepared for operation as the one in the former case, and was given sparteine, 2 grains by mouth every four hours for the last twenty-four hours before operation. The last dose came one hour before operating, at which time 1-4 grain of morphine and 1-100 grain of hyoscine were given hypodermatically. Ether was the anesthetic employed. The pulse at the time of beginning to operate was 84. At the close of the operation it was 90, with no perceptible change in volume. Shock was practically *nil*. One pint of saline solution by rectum was administered as soon as the patient was returned to bed. Hot water to drink was allowed three hours after operation and from that time on was given as freely as the patient wished. Buttermilk was given nine hours after the operation. The patient was not nauseated in the slightest degree at any time. Sparteine was continued at 4-hour intervals after finishing the operation.

In this series of forty cases—in which the preliminary purgation was carried out with the same degree of thoroughness above noted, and the patient kept under the influence of sparteine for twenty-four hours before the operation—shock has been hardly perceptible and nausea has not occurred; whereas, with the same care in preparation of the patient but without the aid of sparteine, vomiting occurred after the anesthetic in a majority of the cases; the pulse-rate frequently was from 20 to 40 beats per minute more at the close of the operation than at the beginning and the operation was attended by the usual degree of shock.

When the patient's intestinal canal has been thoroughly emptied and portal engorgement overcome before the operation, and the patient is well under the influence of sparteine at the time of operation, it is rare to have a variation of more than 10 beats per minute in the pulse-rate during a prolonged operation. Shock is much reduced and nausea rarely occurs.

Such a result, however, can not be expected from the administration of sparteine in emergency work where there is no time for cleansing the patient's system of toxic matter; neither can it be expected in cases where a saline cathartic alone is depended upon to empty the intestinal canal. But even here sparteine contributes materially to the safety and comfort of the patient.

The administration of sparteine after the operation is also beneficial. It insures a more uniform and efficient circulation, especially in the capillary system; and this tends to promote primary union.

Sparteine sulphate sells in the market for about 70 cents per ounce. Merck's, Malinkrodt, Squibb's, and Powers and Weightman's preparations have been found equally reliable. For hypodermatic use, 2 grains dissolved in 20 minims of sterile water yields a suitable strength for use. This solution causes pain when injected into the tissues, but in many thousand injections the writer has not observed an abscess to follow. For stomach administration, the capsule is the most convenient vehicle. A No. 4 capsule holds practically 2 grains, and that is a safe and efficient dose.

In endeavoring to secure some salt of sparteine less irritating when injected hypodermatically, the author secured from Merck & Co. a supply of the hydrochloride. This salt was found to be very deliquiescent and, hence, difficult to preserve; but after giving it a thorough trial the author reached the conclusion that it had no advantage over the sulphate. When a solution of the hydrochloride of the same degree of concentration was used it proved to be equally as irritating to the tissues as did the sulphate; therefore its use was given up and the use of the sulphate resumed. The sulphate and the hydrochloride are the only two salts of this drug listed by manufacturing pharmacists in this country, and, so far as the author has been able to learn, they are the only compounds prepared. They are, in fact, the only practical preparations.

The Neglect of Vaccination

Are We, As Physicians, Directly Responsible for the Continuance of Smallpox in the United States?

By RICHARD SLEE, M. D., Swiftwater, Pennsylvania

HOW oft is the hope expressed that the near future will give us remedial agents in the way of vaccines, antitoxins or chemical compounds for the prevention or cure of those scourges, tuberculosis and cancer. To us laboratory workers, such expressions do not, at times, convey the incentive that they might, did we feel sure that proper use would be made of such discoveries.

We have, indeed, a preventive for many specific diseases, and the means of eradicating all of the scourges which formerly appalled the world. The blunt truth of the matter is, that, in reality, we do not need so many new discoveries, but rather there is a crying need for the proper enforcement and utilization of such means as are right at hand.

At the present time, scattered throughout this entire continent, are isolated cases or even fair-sized epidemics of smallpox. This is a loathsome, dreaded disease, and in times past its mortality far exceeded that of either tuberculosis or cancer, and those it did not slay it left hideously marked for life. Jenner's discovery in its early days impressed the people, familiar as they were with the ravages of smallpox, to such an extent that vaccination became almost universal. The American people, however, are prone to postpone grappling with any difficulty until it actually arises, while past experiences are readily forgotten by them. We make little or no preparation for possible wars, and the same applies, in many instances and in many sections of the country, to our sanitary conditions.

In looking over your family lists, do you ever ask yourself this question, "Am I doing my full duty toward my patients in regard to this subject of protection against smallpox?" Are you following up the babies, children, and adults for that matter, and insisting upon their vaccination and revaccination, until you are sure that they have had a typical "take," followed by its characteristic scar? Or do you look upon the operation of vaccination as of trivial importance and postpone it until the children be-

gin to flock into your office during those muggy days of August or early September when the school authorities jog their memories and insist upon their vaccination certificates.

The socalled cowpox from which we obtain the virus for vaccination is unquestionably but a modified form of human smallpox. It is governed by the same biologic laws in relation to its virulence.

Producers of virus for many years have been worried by their inability to obtain a reliable, active vaccine during the summer months. Virus made during the warm weather is unreliable and often absolutely worthless. Our schools open early in September, and such states as require compulsory vaccination demand that the pupils present certificates of successful vaccination before admitting them.

The result of this very unwise regulation is, that thousands of children, in anticipation of the beginning of their school-life, are vaccinated during the summer months, and this frequently with the result that they are only partly protected or the operation is an entire failure. Thus, undoubtedly, we have growing up throughout this country a large army of nonimmunes.

The infectious agent in smallpox and cowpox is as yet undiscovered. We do know, however, certain things in regard to its life-history. Smallpox, while it prevails in tropical and semitropical climates, is essentially a cold-weather disease. As a rule, the epidemics of smallpox are in the more northern climates and during the winter months. It is rare, indeed, that we hear of any epidemics during the warm seasons, and such cases as do occur are apt to be mild.

A good, active virus will maintain its virulence for years if kept at a temperature of 0° F., or —18 C., or lower. At ordinary ice-box temperature, virus will maintain its activity for three or four months, but at temperatures ranging from 70° to 90° F. or higher for a few hours it rapidly loses its virulence and becomes attenuated or actually worthless. It does not require much reasoning on the part of the physician to appreciate that a good, active virus, when removed by the producer from its proper temperature conditions and shipped during warm weather may, and very probably will, become inert in the course of a few hours.

February, March, April. and May are ideal months for performing vaccination, yielding a maximum of successes. For many years in European countries, especially in Germany, vaccination against smallpox has been done in the late winter or early spring months; and it would be wise were the laws of this country such that vaccination be prohibited, under normal conditions, during the summer months. This would insure the operation being performed during the proper season.

In the absence of such legal regulation, however, it behooves us, as physicians, to avail ourselves of the expert knowledge we are presumed to have of actual conditions, and to protect those who depend upon us for their maintenance in health. The physician has ceased to be a mere treater of diseases, his functions today, with our present knowledge, being as much that of a prophylactician.

It may be, perhaps, that you who deign to read this little preachment will say to yourself, "Oh, this does not apply to me; all this is meant for the other fellows." Let us see.

Colonel Gorgas, of the Medical Department of the United States Army, certainly did not entertain any such sentiments when he assumed charge of the sanitary affairs of the Panama Canal. The Isthmus of Panama in the past has properly been called the "plague spot of the world." Brave men died there by the thousands. Today, through the efficient work of Colonel Gorgas, the canal zone is a more healthful and salubrious spot in which th dwell than is your own village, or city. Controvert this statement if you can.

Your wife, your children, your associates, due to your own carelessness, disinclination or what not, have not as favorable prospects for life, happiness, and longevity as have those hordes of mixed and uneducated laborers of the Canal Zone. Are you personally in any wise a contributor to the mortality and morbidity-rate in your own family and community? Do you practice, and insist upon, vaccination against smallpox, or anti-typhoid prophylactic inoculation, or diphtheria immunization, the extermination of mosquitoes? But why continue the list? Frankly, what are you personally doing with all of these established methods to help make your own neighborhood even approach the Canal Zone as a health resort?

As an educated and scientific man, are you, doctor, willing to admit that the only way to secure proper sanitary conditions is by military rule and administration? For, that it is feasible and practicable under such a rule and administration, has been placed beyond

the pale of doubt. If you feel that this, the military rule, is the only method by which these desirable conditions can be obtained, then, I say, let us have militarily enforced sanitation, and that quickly. If not, then let each and every physician prove by his own energy and efforts that such autocratic authority is not necessary in this country and this enlightened age. What is the verdict?

We hear much about the freedom of the American subject, or, I should rather say, the American citizen. The fact remains, however, that "liberty" with us would better be spelled "license"—license to do what we please, regardless of how it affects our neighbor—license to neglect, overlook, ignore such preventive or prophylactic measures as are this very minute available to every physician in every place.

Microscope and Test Tube—Friends Indeed

By B. G. R. WILLIAMS, M. D., Paris, Illinois
Author of "Laboratory Methods, with Special Reference to the Needs of the General Practitioner"

EDITORIAL NOTE.—We are sorry to announce that this, the eleventh paper, concludes Dr. Williams' delightful series upon "Surprises, Delights, and Curiosities Encountered in Medical Laboratory Work." Happily, we are also able to promise other contributions from Dr. Williams' pen, to the appearance of which all of us will look forward with the anticipation of pleasure and profit.

A friend in need
Is a friend indeed.

IN this, my final, article on "Surprises, Delights, and Curiosities Encountered in Medical Laboratory Work," I desire to express my appreciation of the kind reception of the series by the readers of CLINICAL MEDICINE. My only means of estimating this spirit has been through the receipt of your many kind letters of inquiry and encouragement, all of which have helped me. If in turn anything has been gained by you from reading these little stories and ideas, it is only fair that I credit your editors, Drs. Abbott and Burdick, for prompting me to undertake writing them. It is to the credit of this journal that it has stood practically alone for several years in bringing before the practitioner the need of inquiring into the accuracies of diagnosis as well as therapeutics.

The Golden Rule in Diagnosis

A brother physician, a man known to me mainly by virtue of his vicious attacks upon the science of Virchow and Pasteur, was suddenly seized with a fainting fit and fell from his chair at the breakfast table. He recovered quickly, but called me to his office later in the day. He volunteered:

"Do you know that perhaps the reason why I have ignored the diagnostic possibilities of laboratory work might best be expressed in a confession of my *ignorance concerning these possibilities?* You recall, perhaps, a few months ago when I boasted that I could cure a disease while you were searching for the germs which caused it? Of course I meant that only as a joke." He proceeded to detail to me his observations in his own case and his failure to locate the trouble. "I believe that I am in need of expert consultation," he continued. "If there is anything which your microscope and test tube can determine in regard to this trouble, I should like to have their assistance.

The aid sought was given, and the kidneys of that man were proved not to be diseased. He prescribed for himself a few heart granules, and has never experienced another attack. His attitude in regard to laboratory aids in diagnosis has been changed—Saulus became a Paulus.

And it is the inevitable. The wife of a physician whose practice had not breathed the laboratory spirit was affected with a tendency to metrorrhagia. Was this man satisfied to continue in open antagonism to the big, new half of diagnostics? Was he content to tell his wife to remain happy in the diagnosis of "change of life"? Did he ignore diagnostic curettage and microscopy? No, indeed! When it came so near home he was willing to be converted.

Doctor, suppose your little boy becomes ill with a disease bearing some of the earmarks of typhoid fever, but there is some question about it. Down in your heart there is the great fear. Would a blood count show a

marked leukocytosis? Is there hidden away in that little body an appendicular abscess? Are you doing all in your power to save his life? Or do you hesitate to insure your future hopes? Ah, I am sure that you do not hesitate to give him medicine's best.

Did you ever put yourself in your patient's place? Were you yourself ever seriously ill and saw doubt in the physician's eye as to the correct diagnosis and proper line of treatment? Do *you* apply the golden rule to diagnosis?

If you do, you are doing your best; angels can do no more. Our science is not yet perfect, but only he who throws the rays of his tiny lantern into its darkest corners possesses its beauties.

The Therapeutist, Surgeon, and Prognostician

Ignoring those duties which you owe to your fellow man, let us see what benefits may be derived from your faithful application of good things from the medical laboratory.

Perhaps you pride yourself upon your knowledge and successes in therapeutics. Is there a reason? I follow you to the home of your patient. You think it wise to examine his blood, and proceed at once to do this; or, if lack of time and equipment prevent, you call upon someone else to do so. Therefore the "typhoid fever" yields to your quinine. You pride yourself upon your ability in the treatment of disease.

A drop of secretion from the "cancer of the tongue" shows thousands of treponemas. Salvarsan and mercury correct the condition. Now your colleagues acknowledge your skill in the treatment of disease, and wonder.

The woman with persistent headaches passes a highly acid urine, and so you give her alkalis. Finally even the people hail you as the most successful physician of the community.

You place your patients with "dyspepsia" upon antituberculous treatment, you exclude carbohydrates from the diet of those of your patients afflicted with "nervous breakdown," you administer staphylococcus vaccine for the "inflamed ulcer," you place to your credit a series of other therapeutic successes—"*therapeutic* successes," did you say?

Perhaps you pride yourself upon your knowledge of surgery and your skill as an operator. Another man termed this a case of neuralgia of the stomach. But you proceed to remove this "neuralgia" in the form of gallstones. Before you begin treatment in a certain case of "rheumatics," you extirpate a purulent tonsil. You hesitate to apply iodine over the "cirrhotic liver" of another patient, but, instead, you drain a gall-bladder abscess just in time. "Cervicitis," say the other doctors; but your curette brings out cancerous tissue. Yes, indeed, you are a very successful surgeon, but to what do you owe this success?

Perhaps you pride yourself upon your cleverness as a prognostician. Do you advise the family properly by an examination alone of the cachectic father, or do you search also for casts? Do you prepare the husband for the worst, or bid him hope by a mere inspection of the suspicious ulcer of the breast or upon the appearance of the *cells?* Popular opinion has it that you can augur the outcome of almost every case of sickness. Upon what, pray, do they base these claims?

"She will die," the others assert.

"There is hope," you echo.

Why?

Do Not Break Our Diagnostic Triad

That the microscope and test tube are our only friends in need, I have never claimed. Though medicine is not a perfect science, its department of diagnostics approaches nearest this ideal. But to be of greatest aid, we must call in its three great systems of investigation. The union of these into a powerful triad brings us nearest the truth.

By Hippocrates, Sydenham, Louis, and Flint, we were shown the value of history-taking and of symptomatology.

Through Laennec, we gained our first knowledge of the possibilities of percussion and auscultation.

But how is it possible to diagnosticate best and treat best a disease unless we also know something of its cause as well as of its manifestations and the nature of the anatomical alterations?

And it was just this knowledge which was supplied by the founders of the laboratory idea: Virchow of pathology, Pasteur of bacteriology, and Ehrlich of clinical chemistry.

Now we all know of these things. There is no such term as "laboratory diagnosis." The triad cannot be broken here. Upon the other hand, in the light of our present knowledge, there is no such term as "bedside diagnosis"; and the man who ignores all laboratory aids will soon find himself in a hard place—in fact he will be in a position like to that of the toad who, jump-

ing this way and that, finally gasped to the harrow, "You are too many for me!"

The Bluffer

In almost every city we find him nowadays—the bluffer. It is he who is buying laboratory gauds—nickel-plated sterilizers, expensive incubators, apparatus for photomicrography, and all the other paraphernalia designed to deceive the people and bewilder them with the impression that he is *the* progressive man in his community. Then he folds his arms and looks wise—and the dust collects upon the embroidery.

Does this man ever fool you? He never fools me. Even his patients soon demand that he use these ornaments or else store them in his basement. Cabbage will not make soup without fat. In this department of medicine, as elsewhere, I would advise intellect first and equipment later. The laboratory apparatus of one of our most famous old-time chemists consisted of a pan, two glass tumblers and a candle.

I am free to acknowledge that the bluffer has exerted a detrimental influence upon the healthful laboratory spirit; but times are changing, and his museum is not now found so easily. Less emphasis now upon the workshop—show us the *man*.

The Real Duty of the Practitioner

Our Jacobi (we all honor him), and many others having the good of the practitioner at heart, apparently would recommend that the family physician do all his laboratory work. I should be pleased to see this ideal condition realized, and I am sure that the obstacles are not so great as we have believed. For the past few years, as some of you perhaps know, I have been attempting to simplify and classify many of those procedures, thought to be impossible to the busy practitioner, in such a manner that he may utilize them in his work. In this undertaking, I have placed myself not in the large laboratory, but in the position of the rural physician and have hoped to view the question through his eyes, that I might be able to lead him to better things.

Still, at the present, it seems to me that the family doctor may well omit certain of these procedures requiring special skill, much time, and great expense, and refer these to the specialist. At least this is my usual advice at the present time; and this I shall continue to give until I am convinced that all worthy analytical procedures are possible for the general practitioner.

But there are many simple bits of bateriological, chemical, and micriscopical work which the physician is neglecting; and I trust that this series of papers will prompt him to undertake these. From time to time you will see in the columns of this journal many valuable tests which you may apply with diagnostic profit—aye, with therapeutic profit as well. I beg of you to mark these and use them in your work. It will pay you. The man who interests himself in these things will soon see their beauty and appreciate their value. Recall the story of the physician who conceded that he "ignored because of ignorance."

The greatest duty of the physician, therefore, is that of informing himself upon the practicabilities of the medical laboratory. Whether he actually carries out these tests or whether he calls a colleague who makes this work a specialty is a secondary consideration, at least so far as some investigations are concerned. Learn to interpret this information and apply it to your bedside observations, forgetting not the great diagnostic triad. Understand the circumscriptions and the value of the test, and you will gain much of the laboratory spirit.

Treat your patient as you would choose to be treated if you were ill. Exhaust every diagnostic aid which gives any promise whatsoever. Do not, as I have seen some men do, stake their lives and your reputation upon laboratory tests alone. Do not be content with a squint through the microscope or a shake of the test tube.

Do not search invariably (like the sluggard) for the "specific" test, else your experience will be as sad to relate as that of the man who attempts to discover the pathognomonic symptom or the specific drug for the disease-name.

It is the man who staggers through the wood searching for four-leafed clovers who butts his head into the oak; or he who steps onto a piano stool to nail a horseshoe over his door who gets the broken leg.

The Fundamental Laws of Active-Principle Therapeutics

By J. M. FRENCH, M. D., Milford, Massachusetts

EDITORIAL NOTE.—Last month we published the first address of Dr. French, delivered before the students of the College of Physicians and Surgeons, of Boston, upon the topic of "Active-Principle Therapeutics." That address was delivered January 9, and was followed in a week by the second lecture of the series, which we reprint herewith. The remainder will follow in succeeding issues.

LAST week I described to you the origin and growth of active-principle medication in Europe and America. Today I desire to call your attention to the fundamental laws, general principles, or elementary teachings, upon which this method of therapeutics is based.

According to my conception, these are three in number, and these three embrace all the things which are strictly essential to the method, although many other and less important peculiarities and practices have grown up around them, and of these I shall speak in my next lecture.

The First Law Teaches the Use of the Principles in the Treatment of Disease

The term "active principles," as here employed, is interpreted to include not only the alkaloids proper, but also many glucosides, resins, camphors, neutral principles, resinoids (so called), and concentrations of vegetable drugs, together with such definite chemical compounds as are sufficiently potent to produce positive results in minute doses, and of sufficient medicinal virtue to render them desirable additions to the physician's armamentarium.

This law has usually been considered not only as the first, but the most important of the three. The followers of active-principle medication are ever ready to put it to the front, and defend it as the cardinal principle of their faith and practice. If you ask them for their reasons, they will point you to the acknowledged facts that quinine is more active than Peruvian bark, atropine more positive in its effects than belladonna, morphine more definite and certain in its results than opium, pilocarpine more uniform in its effects than jaborandi, strychnine more efficient than nux vomica, and, in general, every active principle more potent, more uniform, and more reliable than the crude drug from which it is derived, or its galenic preparation.

This being the case, he holds that it is manifestly better to employ these active principles and reject the bulky residue, the inert matter, the unknown and unreliable substances whose effects cannot be predicted with any degree of certainty. For why should any part of a plant or of an animal or mineral substance which is not active be used in medicine? Instead of choosing his remedies for their bulk, and possibly for their disagreeable qualities, as was apparently in some instances the custom in olden times, he seeks for "the smallest possible quantity of the best obtainable means to secure a desired therapeutic result."

Arguments in Favor of Active Principles

If we analyze the arguments in favor of the active principles, we shall find that they can be separated into several classes.

First, because, as compared with the crude drugs and their galenic preparations, they are condensed in form, minute in dose, and positive in results; containing only the active remedial principle of the drugs which they represent, and rejecting the inert material.

Secondly, because they are uniform in composition, containing but a single therapeutic principle, and therefore always to be relied upon as producing the same remedial affect; whereas the crude drug may contain several unlike and even opposite principles, and these may occur in different proportions in different specimens of the drug, so that one sample of a galenic may be much stronger than another which was prepared from the same formula, and different samples similarly labeled may produce entirely different and even conflicting results. Recent analyses of standard tinctures on sale in the different drugstores of the same cities have shown a wide variation in strength, although all presumably contained the same percentage of the drug.

The drug-strength of a plant is affected by the character of the soil, the amount of sun-

shine, the temperature, and many other conditions of environment. And these may change, not only the total amount of active principles in a plant, but the relative proportions of the different principles in the same plant.

A good illustration of this fact is found in jaborandi, which contains two active principles, pilocarpine and jaborine, the one of which is the most potent of all our diaphoretics, while the other is the exact opposite, its effect being allied to that of atropine, drying up all the secretions. While under ordinary conditions the amount of jaborine is comparatively minute, and the drug jaborandi is given to promote the secretions, cases have actually occurred where it has been found to produce the opposite and undesired effect of drying up the secretions. But, if pilocarpine is used instead of jaborandi, no such effect is possible.

Keeping Qualities of These Drugs

Thirdly, they are convenient to carry, taking up but little space, and having excellent keeping qualities. These qualities render them of especial value to the country doctor who is far from his base of supplies. Dr. Robert Gray, of Pichucalco, Chiapas, Mexico, an American physician who has practised in the most unhealthy belt on the continent, most of the time since the close of the Civil War, writes as follows of his own experience.

"I carry one hundred and fifty-six active principles, weighing less than five pounds with case, the equivalent of which in galenic forms would load two mules. I am never ambushed by the enemy when suddenly confronted by some desperate emergency, no matter what the disease or the complications may be. I have the antidote while the time for medication still remains, and do not have to send prescriptions to a distant drugstore for uncertain remedies, a makeshift often fatal to an imperiled life."

As for the keeping qualities of the active-principle medicaments, they are due in part to the chemical qualities of the alkaloids themselves and in part to the manner in which they are held together in the standard granule, which is well known to preserve the medicaments much better than any kind of coating that can be applied to a pill or a tablet. This is well seen in the case of calcium sulphide, a drug that is almost certain to deteriorate by keeping when prepared in the ordinary tablet or pill form. Here the superiority of the standard granules over the other preparations is very marked.

While we believe in the superiority of the active principles, as a general rule, cases no doubt are encountered in which better results can be obtained from crude drugs and their galenical preparations, as well as from the coal-tar preparations and other chemical products. When this is so, they should be used without hesitation. In the words of Shaller, who is one of the first authorities on active-principle medication in America, "Any remedy that is good and that cures is used, no matter what its source of by what school it has been first advocated." The greatest need of the doctor is, not the active principles, but definite therapeutics, no matter whether it be in the direction of galenic medication, biochemistry, specific medication, serum treatment, or glandular therapy.

Small Doses Frequently Repeated

The second law teaches the administration of these remedies in minimum doses frequently repeated, until improvement is manifested or physiologic effects are produced. This is known as the intensive method of dosage, or dosage for effect.

I have said that the use of the active principles looms highest in popular estimation of all the characteristics of this method. But, if this were the only factor, it could never rise to the dignity of a system of therapeutics or even a method of administering drugs. The first law determines the tools to be used, the second explains the manner in which they should be used.

The matter of dosage is one of the first importance to the physician. In the system in common use—which we may term massive dosage—there is a maximum and a minimum dose laid down, and these must be learned arbitrarily for each drug and every preparation. Very likely there may also be an average dose given, which is supposed to be the one most commonly used; yet, if the doctor keeps between the limits of the maximum and the minimum dose, it is assumed that he is on the safe side and cannot be blamed, whether he fails to benefit the patient on the one hand or happens to kill him on the other—for has he not followed the dictum of the authorities and given the proper dose?

Like the spelling book, the dose book usually takes up a good share of the student's time when in school, and like it, again, is promptly laid on the shelf when school days are over. Of my two teachers of materia medica when I was in the medical school, from one of them I do not remember that I

ever learned much of anything except doses —and I promptly forgot these as soon as I had passed my examinations.

With many remedies, when a maximum dose is given, it is supposed to produce the full effect of the drug, and a second is not to be given until the first is eliminated from the system. But whether or not it really does produce the anticipated effect upon the system, depends upon so many factors that no one can foresee what the result really will be.

If the patient is sensitive to the action of this particular drug, he may be overwhelmed by a dose that would produce no noticeable effect upon another person, even though the two might seem to be counterparts. On the other hand, we often meet with patients who are not easily affected by drugs of any kind, and hence require very large doses in order to secure results.

How is the doctor to decide in the case of a new patient whether the dose which he has administered will prove a poisonous one or will fail to produce any noticeable effect, either therapeutic or physiological?

This Method of Dosage Overcomes a Defect

The defects of this system of dosage are frankly admitted by our best therapeutists. Potter, in his excellent "Materia Medica, Pharmacy, and Therapeutics," says: "The dosage of medicine is the weakest part of the therapeutic armament, the flaw in our weapons which may be the cause of their failure at any moment, perhaps the most critical one for a life. If the accumulated rubbish of ages, which has been called therapeutic knowledge, is ever to be given scientific shape or placed in the process of becoming a science, the question of dosage must form one of the principal corner-stones in the foundation."

Now, it is this weak spot which active-principle therapy has undertaken to strengthen, this chief corner-stone which it has set out to put in its proper place in the temple of scientific medicine. Already, in the process of evolution, in the attempt to build our fragmentary therapeutic knowledge into a science, there has been formulated by the master-mind of Burggraeve and elaborated by the dosimetrists of Europe and their disciples in America, a system of dosage which avoids all the dangers mentioned and at the same time meets the requirements of safety, accuracy, and convenience.

This, as already mentioned, we call the intensive method, and its fundamental principle is dosage for effect. By this method, a minimum dose is given at the outset, and this is repeated at frequent intervals until the characteristic effect of the drug is secured, either therapeutic or physiological; and then less frequently as long as it is desirable to maintain the effect.

Granules of Minimum Dosage Employed

As a matter of convenience, the medicaments used are all prepared in granules of minimum dosage, so that the labor of learning the doses is entirely obviated, as the doctor never undertakes to put up his own granules. This system is especially adapted to the more powerful drugs of whatever nature, which are the very ones that by the common method give rise to the most anxiety, lest ill results should follow their use in maximum dosage, or no results be evident from their infrequent exhibition in minimum dosage.

For example: If the doctor wishes to give aconitine in a case of fever, he gives one granule, preferably in solution, every fifteen to sixty minutes, according to the intensity of the fever and the condition of the patient, until the remedial effect of the drug is seen by the establishment of perspiration, the pulse becoming softer and less frequent, the tongue moister and the fever less intense; or, failing to get these results, it is given until the earliest manifestation of its physiologic action, which is seen in the sensation of numbness and pricking in the lips and tongue, extending to other parts, makes its appearance.

The first group of these symptoms shows that the drug has done its work and that thereafter it may be given somewhat less frequently as long as it is desired to maintain the effect. The second group of symptoms indicates that as much of the drug has been given as can be with safety and it is time to stop. But in every instance these symptoms give ample warning in time to avoid all danger.

This method tends to accuracy in therapeutics. It relieves the physician of all fear of overdosing and all need of learning an arbitrary dose-list. But it requires an absolute knowledge of two things on the part of the physician: He must know, first, what he wants the drug to do—that is, the remedial effect. Secondly, he must know what the drug will do if pushed to the limits of safety—that is, its physiological action. These two things are absolutely essential. They are best learned by studying, in case after case, the action of each drug upon the patient,

with your own eyes and ears and fingers, until you become familiar with their effects.

This experience in itself will make you a better therapeutist than you could otherwise be. That is one thing where the old country doctor, who remained with his patients the livelong night, had the advantage of the scientific young fellow of today, who simply looks at the nurse's chart and prescribes from that. But to be a good doctor, you must know the action of your drugs perfectly and be able to tell your nurse or attendant definitely what to look for, when to change the dosage, and when to stop. Do this, and you will get results.

Acute Diseases May Be Aborted

The third law teaches that acute inflammatory and febrile diseases may be aborted in a large proportion of cases, provided that the proper treatment is begun before the occurrence of structural changes. From this follows as a corollary the importance of beginning early in the treatment of disease.

Here at last we are brought face to face with a therapeutic principle around which many a hard-fought wordy battle has been waged, and the truth of which is not even yet accepted by a large proportion of the medical profession—namely, the possibility of aborting specific and self-limited diseases. It may, therefore, be worth our while to spend a few minutes in considering the arguments in favor of the principle which I have stated, in order that you may determine for yourselves whether or not it is true, and whether the resulting corollary is a safe one.

Here, with your permission, I will quote some passage from a paper entitled "Can a Specific Disease Be Aborted?" which I read before the Worcester District Medical Society some years ago and which was afterward published in *The Boston Medical and Surgical Journal*.

"To be on the safe side in this discussion, let us be sure of our definitions.

"*Specific disease*, a disease which has a determinate course and succession of phenomena, and is due to some distinct and definite cause, as syphilis or itch.

"*Special, limited disease*, one having a somewhat definite course and period of duration."

"*Abort*, 'to cut short the course or growth of.' (Standard Dictionary.)"

In the light of these definitions, the question for us to consider is practically this:

Is it possible for the physician, by any means at his command, to cut short the course or limit the growth of disease in general; and in particular of such forms of disease as are due to more or less distinct cause, and which, when left to nature, develop according to a determinate course and succession of phenomena, and have a somewhat definite period of duration? To be more specific: Can a simple fever be broken up or a local inflammation be cut short in its early stages? Can you limit the course of inflammatory rheumatism or abort a typhoid fever, a pneumonia, smallpox, gonorrhea, diphtheria, the itch? Can anything be done to limit the ravages of the bacillus tuberculosis when once it has begun its deadly work?

The answer which shall be given to these questions is of the utmost importance to the physician, as affecting his reputation, his success, and the satisfaction with which he practises his chosen profession. It is of even greater moment to the patients whom he treats, and the families under his care, because it helps to determine whether their physician shall be a welcome visitant, bringing hope and added years of life to the sick one, and giving courage to his friends and family, or one whose coming is looked upon with dread, whose presence breathes only despair, who admits himself a failure at the outset, and who practically counts himself out as a factor in the treatment of disease.

What Authorities Say

It must be admitted that the weight of authority is decidedly against the possibility of aborting a specific disease. It is almost universally assumed that a disease which has once gotten fairly under way must of necessity go on its course uninfluenced by medical treatment. Should a claim be made that a disease has been aborted, the usual answer is that the diagnosis was incorrect; that a disease is not a specific one unless it goes through a regular course, and if it does this it certainly is not aborted. Hence a specific disease cannot be aborted.

Just here the question suggests itself, Does not nature itself sometimes abort disease? Or, to phrase it a little differently, Do not diseases at times abort spontaneously? The answer to this is evident, and the fact is universally recognized by medical authors that such is the case. So well is this understood, that the second answer which is apt to be made to the claim that a disease has been aborted is, that it aborted spontaneously; or that it was an abortive case; or that nature aborts a certain proportion of cases. In each of these forms of reply, the fact of the short-

ening of the disease from its natural course is admitted and the only debatable point relates to the possibility of bringing about this result by artificial means, that is to say, by medical treatment.

But, if it be admitted that nature does actually accomplish this beneficent result in certain instances, then why should it be deemed impossible that art should be able to aid in the process? The law of cause and effect is everywhere the same, and it would certainly seem that where nature accomplishes a given result under certain conditions, it might be within the bounds of human skill to aid in bringing about these conditions, and thereby to assist in the work.

Should it be granted that such a result is within the bounds of possibility, and that it is also desirable, is it not the part of wisdom to seek for the means whereby it can be accomplished, instead of crying out in advance that it is impossible, that it cannot be done, simply because we do not know how to do it or have not the means now at hand? The history of medicine shows us that every important progress in our art has consisted in the accomplishment of that which but yesterday was declared impossible. It used to be supposed that conscious suffering was a necessary accompaniment of surgical operations; but Morton, Wells, and Simpson brought anesthesia to light and abolished pain in surgery. Not so long ago as to be beyond my memory, it was considered that "laudable pus" was not only unavoidable but desirable in the healing of wounds; but Lister showed the world that it was not necessary, and it is now looked upon as a deep and damning disgrace.

If Diphtheria Can Be Aborted, Why Not Other Diseases?

But, if the possibility of aborting disease be admitted as an abstract proposition, how about it as an actual fact? Are there not instances to prove that in some cases at least specific diseases are unquestionably aborted, and that by strictly therapeutic measures? As, for example, diphtheria by antitoxin? What better example than this of the abortion of a specific disease can be asked for? It must be admitted that no better example of a specific disease can be found than this. It corresponds at every point with the definition which has been given.

Only a few short years ago few persons were rash enough to advocate even the possibility of aborting it. Today the world accepts it as a fact beyond dispute, and the physician who fails to abort a case of diphtheria which comes under his care makes haste to explain that it did not come into his hands until it was too late, or that for some reason beyond his control he was unable to administer the proper dose of antitoxin at the proper time. It is true there are still a few persons who deny the utility of antitoxin, just as there are those who decry vaccination or who continue to hold that the earth is flat and the sun moves round it once in twenty-four hours.

If it be admitted that diphtheria can be aborted and if the commonly received theory of the action of antitoxin be accepted, is it not within the bounds of reason that there may be corresponding remedies for some of the other specific diseases, if not for all? That this supposition is true is shown by the eagerness with which the medical world has sought and is still seeking for just these things. It is also true that in no other disease has an antitoxin been discovered which is as positive and beneficent in its effect as is that for diphtheria; but this fact only serves as an incentive to more earnest effort on the part of scientific men and as a stimulus to scientific research from one end of the world to the other.

Once more, if this result has been obtained by antitoxin, which is, after all, only a natural product, is it not conceivable that similar results may be obtained by other means just as natural. And if it be admitted that medical treatment exerts any influence whatever upon the course of a disease, is it nor reasonable to suppose that this effect will be most marked during the formative stage, when it is not yet fully developed?

"Breaking Up" a Fever

To come down to specific instances, by what strict rule of science must it be declared an error to suppose that sweating may break up a fever or dissipate a local congestion? If we rightly understand the functions of the vasomotor nervous system and correctly estimate the role of vasomotor spasm and paralysis in the genesis of fever, is it not reasonable to suppose that means tending to restore the proper equilibrium to the circulation would have a tendency to dissipate the febrile paroxysms? And if the febrile condition is removed, is not the fever itself aborted, jugulated, broken up, cut short, made not to be?

Furthermore, what doctor in his practice does not strive, when he is called in the formative stage of a fever, to "break it up"? What one does not encourage the patient and his

friends to hope that this result may be obtained? And, should he fail to bring it about, what medical attendant does not gently intimate to the patient's family that he might have succeeded had he been called a little earlier in the case?

Now the question is, Are the doctors frauds in this matter or do they build better than they know? Is not their practice better than their theory? Do they not, by their practice, confess that the doctrine of the jugulation of fevers is a reasonable one? Does it not, indeed, work well in practice?

If antitoxin can abort diphtheria after it has gotten fairly under way, and if it renders a healthy individual temporarily immune to the toxin of diphtheria, then why should it be considered an absurdity to suppose that it can act upon the disease in the stage of incubation? And, if antitoxin can do this, why not other agents? Even if no such agents are now known, may they not some time be discovered? And, if this possibility be admitted to be a reasonable one, why not search high and low for the means until they are found?

If mercury be a specific in syphilis, then why may it not act upon the disease in its incubative and formative stages, as well as after it has fully declared itself? Or, if not mercury, then some other remedy? Or why, if we were in possession of the proper remedy, might not the disease be aborted in the interval between the primary chancre and the secondary manifestations? If we possessed a specific in smallpox, why might we not expect to be able to abort the disease in the stage of incubation as well as to render the subject immune by vaccination or control the symptoms of the eruptive stage? If diphtheria can be aborted, why not pneumonia, typhoid and malarial fevers, gonorrhea, syphilis, rheumatism and consumption?

Should the answer to this last question be that we are not yet in possession of the proper remedies and means to enable us to accomplish these results, however much as we may desire to do so, I beg to remind you that it is but a few years since we had no organic extracts, no serum therapy, no intestinal antiseptics, no nuclein, and almost no alkaloids.

Would it not, then, be better to admit the possibility of improvement and then go to work with all our might to make the possibility a reality, instead of spending our time in crying out, "It is impossible, it is absurd, it can not be done"? a cry which has been uttered by every reactionary in the face of all progress since time began.

The Importance of Beginning Early

Coming now to the corollary, or deduction, of the importance of beginning early in the treatment of disease, we find nothing in it that is especially new, nothing to which most physicians will not readily agree.

The peculiarity of active-principle therapeutics in relation to this truth lies, not in its acceptance, but in the emphasis which is placed upon it. As to the fact, there is little difference of opinion among physicians. It remains for the disciples of dosimetry to insist upon its supreme importance and to urge its acceptance by the patient as an essential factor in the successful treatment of disease. He educates his patients systematically to send for their physician at the earliest indications of acute disease, and that not as a favor to the doctor but to benefit themselves.

From the doctor's own point of view, he will have more first calls, but fewer protracted sicknesses; more slight illnesses, but fewer fatal outcomes. The bills will be smaller in the individual cases but they will be sent in oftener and paid more promptly. And, surely, considered even from a financial standpoint, a live patient is worth more than a dead one. Hence such a course will be of advantage to the doctor as well as to the patient.

When the physician is called to a case of disease at the outset, he does not have to wait until he can make a positive diagnosis before he begins the treatment. He does not need to spend a week in watching the development of the malady, meanwhile making daily visits of inspection but lifting no hand in defense of the imperiled vital forces.

Instead of this it is his privilege to treat the diseased conditions as he finds them and as they are indicated by the earliest symptoms in the case. He knows how to treat the elementary conditions of disease, even before the causes are evident and before a complete diagnosis is possible. Knowing the rational indications for early treatment, he is often able to prevent the development of pathological lesions and to see the patient restored to health without ever knowing the name of his disease. To be sure, this is an inexcusable sin in the eyes of the pathologist and one on no account to be countenanced. But the patient and his friends are usually well satisfied, and as they are the ones who pay the bills and recommend the doctor he ought not to be the one to find fault.

You will remember that I told you last week that Burggraeve, the originator of dosimetric medicine, which was the original of modern active-principle therapeutics, states that "dosimetric medicine rests essentially upon its power to jugulate those fevers in which all acute maladies have their commencement. Its great end is to prevent anatomic-pathologic lesions, for these once established are beyond the resources of art."

This is only another way of stating the law which we have been considering; and you will readily see that the only way in which these results can be accomplished is by beginning early in the treatment of any disease. To sum up, then, we may include the essentials of active-principle therapy under the three following heads:

1. The materials, which are the active principles, in the main.
2. The method, which is the intensive method of dosage.
3. The object, which is the abortion of disease; and this leads to the resulting rule of action: Begin early.

On these three principles hang all the minor peculiarities of the system—of which I shall tell you more next week.

Hyoscine, Morphine, and Cactin in Obstetrics

A Record of Six Years' Experience

By WILLIAM RITTENHOUSE, M. D., Chicago, Illinois
Professor of Obstetrics, Bennett Medical College

SO often have I been asked for my opinion on the value and safety of the combination of hyoscine, morphine, and cactin in labor, that I have thought it might be worth while to put my experience before the readers of this journal.

For many years I had made a study of the subject of unnecessary suffering during childbirth, for it had always seemed to me a reproach to the medical profession that it gave so little attention to mitigating and shortening the agony endured by parturient women. If doctors were as indifferent to other kinds of pain as they are to the suffering endured by women in childbirth, they most assuredly would be severely criticized. A patient writhing in the agonies of sciatica or gastralgia gets sympathy and prompt relief. A woman in labor, enduring agonies just as cruel, is told to "be brave." Possibly this indifference to the suffering of childbirth is a corollary to the old superstition that those sufferings are a penalty for woman's part in the free distribution of apples at the great land-show in Eden many centuries ago.

However that may be, I have long felt that if I could help to arouse in the profession a greater interest in this subject I should not have lived in vain. So, for the last twenty years, I have studied this matter at the bedside, for books give little help. I have been successful to a greater degree than I had dared to hope for at the beginning; and this success has been partly in the way of shortening labor, and partly in relieving pain.

The subject of legitimately shortening labor will be taken up at some future time. In this paper I shall discuss only the relief of suffering; this object, in my opinion, being best obtained by the intelligent use of chloroform and the combination of hyoscine, morphine, and cactin.

A Case Where the Hyoscine-Morphine Did Great Work

About six years ago I had a case in which the suffering of the woman was extraordinary. She was a primipara, of Polish birth, 24 years of age, vigorous, and of muscular build. The external os was high up in the hollow of the sacrum and firmly bound there by adhesions. In consequence, dilatation was slow, in spite of the fact that the contractions were terrific both in force and resultant suffering. Fearing rupture of the uterus, I resolved to try the hyoscine and morphine combination, of which I had read, but which I had never used.

I proceeded to dissolve one tablet of standard strength—representing hyoscine hydrobromide, gr. 1-100; morphine hydrobromide, gr. 1-4; cactin, gr. 1-64—and administered it hypodermically. The result was striking. In twenty minutes the intensity of the contractions was somewhat moderated. The patient would sleep quietly between pains. During the pains she seemed to be in a mild delirium, muttering incoherently, but answering rationally when spoken to. This delirium perturbed me somewhat, and I must

confess to some anxiety as to the outcome; but I saw no further untoward symptoms. Upon completion of the delivery, the woman immediately went to sleep, awaking after three hours and feeling well, and loud in her praises of the medicine that had helped her so much.

A Large Experience

Since then I have used the same remedy in more than three-hundred cases, and always with satisfaction. I soon learned, however, that the full dose is not generally necessary, and I now give half the above dose, and repeat, if necessary, which is seldom.

At the present time I use the remedy in more than eighty percent of my labor-cases; there are a few women who bear their pains so well that it does not seem necessary to use any anodyne.

The advantages following the employment of this remedy, as I have observed them, may be set down as follows:

1. The sum total of the parturient woman's suffering is greatly reduced, while the effectiveness of the contractions is not impaired. The testimony of the patients themselves, as to the great relief experienced, is no small factor in building up a physician's practice, inasmuch as they are sure to tell their friends.

2. If chloroform is needed at all, the amount required is very much less under the circumstances.

3. At the end of a protracted labor the exhaustion is much less. The patient will usually go to sleep for about two hours, then awake in good condition.

Occasionally I am asked whether I have found the use of this remedy to cause more frequent postpartum hemorrhage. I have not found this to be the case; on the contrary, I think its tendency is the other way. One of the greatest factors in the causation of postpartum hemorrhage is exhaustion; and, as exhaustion is less marked when this remedy is employed, I see no reason why hemorrhage should be feared. As a matter of fact, I have encountered fewer postpartum hemorrhages than formerly, whatever the explanation may be.

Asphyxia of the Child?

I have also heard the objection that the use of the hyoscine and morphine preparation has a tendency to produce asphyxia of the child; I never have lost an infant from this cause. However, in several instances where I have used the larger dose or where the mother was under the drug's influence for an unusual length of time, I have found it necessary to use insufflation to establish respiration, and I have also observed that the infant showed a tendency to sleep for the first day or two. But where I have used only the half-dose, I have met with no trouble whatever.

On the whole, then, I regard this remedy as a most valuable addition to the obstetrician's armamentarium. On the question of its safety I no longer have any doubts. If the dangers of its use were great, I certainly should have discovered the fact in my three hundred cases. If others have had untoward results, I should be inclined to inquire whether they have not been due to the use of unnecessarily large doses.

The Creed of True Success

To be honest; making money honestly or not at all.
To be fair; refusing to injure a competitor.
To be just; remembering that all must live.
To be kind; regarding employees as something more than an investment.
To be charitable; giving liberally for the upraising of humanity.
To be healthy; exercising as a duty.
To be sociable; having a side to friends not known to all.
To be lovable; being more to wife and family than mearly a means of support.
To be sympathetic; fearing littleness of soul more than littleness of fortune.
To be broad; accumulating resources higher than the material.
Above all, to be true, true to one's self, condoning nothing in self that you condemn in others.—David R. Forgan.

Some Sinusoidal Suggestions

A Résumé and Compilation

By HOMER CLARK BENNETT, M. D., Lima, Ohio

A SINUSOIDAL mode is an alternating mode, in which the alternations occur gradually, and practically without interruption. The potential in one direction begins at zero, with a gradual rise to the maximum, which is gradually overcome, till it falls to zero and is neutralized, and immediately is followed by a corresponding fall of potential in the opposite direction, which falls to the maximum, is gradually overcome, till it rises again to zero, and is neutralized.

These changes, when illustrated diagrammatically, follow the line of a sine curve, hence the name, sinusoidal.

It is rather difficult to appreciate this curve and get the idea of progression from a flat drawing; but, if you will wind a long wire in the form of a coil with equal convolutions and hold it so you can look through it endways and imagine something whirling round the turns away from your eye, it will convey the idea. Or, if you look through a rifle-barrel, you can get the idea of the whirl of the bullet as it passes through the barrel.

This mode was brought to notice simultaneously by two men, both physicists; namely, Kellogg, of America, and D'Arsonval, of Paris, and a great deal has been said and written in the past few years about the nature and action of this mode in therapeutics.

General Rules for Choosing Electric Modes

In choosing any special electric mode for the treatment of any given condition, the structure to be treated must suggest the mode to be used.

If the structure of the tissue is coarse (muscle, etc.), we should resort to the faradic mode, which contracts and relaxes muscle-fibers. If we wish to make an impression on the local nutrition of these parts, the galvanic would be the one to use. If we wish to alter (increase or diminish) the blood supply, we should apply the static. If we want to act on the vasomotor nerves or, in fact, on nerve-cells and nerve-fibers generally, some form of high-frequency should be selected. The high-frequency coil (uni- or bi-polar) is adapted to trophic perversions of nerves. For the skin (circulation and nerve supply), one should employ the resonator. For low blood pressure, use the insulation. For high blood pressure (as in renal troubles and arterio-sclerosis), use the autocondensation. As a metabolic alterant, locally and constitutionally, use the static cage (autoinduction), the diasolenic zone, the magnetone or the wave generator. For paralysis or atony of the involuntary muscles or for any sluggish glandular condition, the sinusoidal is the mode to be preferred.

The general rule is: the coarser the structure, the coarser the mode to be used; the finer the structure, the finer the mode.

The mode derived from *the secondary winding* of an induction coil is alternating, but the positive and negative phases of the alternation differ much in the electromotive force, and the gradations from the neutral, or zero, to the high and the low potential is irregular and far from uniform; while the variation in potential in the sinusoidal mode is smooth, regular, and uniform.

The secondary, induced (faradic) may be likened to the swing of the pendulum of a clock, which goes fastest when near the center of the arc and slowest when farthest away, and there is a point in the swing of the pendulum where it stops on either side. This stop makes an interruption in the secondary mode, and the time of this stop is greater than the time of the passage of the mode. It is at this dead point in the swing where we get the jerk, which hurts.

The Sinusoidal Mode Explained

The sinusoidal mode may be likened to the same pendulum being swung entirely around, in a complete circle, back to the starting point, thus obviating the stop, or dead point, and making the flow smooth. It is thus that the sinusoidal differs radically from the secondary, induced mode in its physical properties; and it is therefore that we have a difference in the physiological and therapeutic effects.

The "magneto" machines of our boyhood-days' memory gave a rough sinusoidal effect, and the later generators were only improvements of it. The commercial lighting dynamos also furnish a mode which is still more or less roughly sinusoidal, and may be used by those having access to it and have

some apparatus for modifying its strength and voltage. As the speeds of these dynamos, while in action, are quite uniform, the number of alternations does not vary much, and so the operator must content himself with the one rate of frequency; and, while it is useful in some conditions, it is worthless in others.

It is convenient and often desirable to have a generator that will deliver a mode of variable frequency, so as to adapt it to all cases. This is possible in one form of apparatus, which will be described more in detail further on.

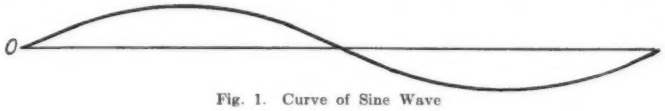

Fig. 1. Curve of Sine Wave

The drawing shown in Figure I shows the curve of a sine wave as it makes one complete circle, or cycle, the rise being slow and gradual and the fall the same, then going to the other extreme and back again to the level. In this the range of potential is from the crest of the wave to the bottom of the trough.

The drawing shown in the Figure 2 will illustrate the curve of the common induced (faradic) mode, the rise being abrupt and the fall irregular, and the recession being unequal.

The sinusoidal mode will cause powerful, tonic, painless muscular contractions, both in voluntary and involuntary fibers, while the faradic will be harsh and disagreeable.

It is on account of this smoothness of the sinusoidal mode that it has its peculiar action on the motor and sensory nerves. The sensory and motor mechanism of the body is capable of adjusting itself to a considerable range of difference in external conditions without serious disturbance or discomfort, providing the change is not too

Fig. 2. Curve of Common Induced Mode

sudden or violent. Even though there may be many periods of alternation of the mode per second, and the electromotive force be high, yet the nerves and muscles will respond to the stimulus of such vibrations without disagreeable reactions, providing the change in strength is gradual.

The number of cycles per second, the voltage, and the quality of the mode are most important in determining the therapeutic effects of this mode, but most important is the feature of the uniformity of range. This uniformity will lessen the disagreeable effects of electric excitations both on the motor and the sensory mechanism of the body.

We may arouse just as much muscular action with this mode as by any other means, with no bad effects, such as pain, fear, fatigue or exhaustion. This is the great advantage which the sinusoidal possesses over all other modes. Heavy doses, causing powerful muscle contraction, both voluntary and involuntary, and without pain, may be given with the sinusoidal mode; and the slower cycles have been proven of special value in treatment of paralysis of the bladder, uterus and intestines, and in atony of the hollow organs, stomach, bladder, and so on.

When we consider how many of the normal processes of the body—such as assimilation, circulation, secretion, excretion, locomotion—depend directly upon muscular tone and vigor, we see what a wide range of therapeutic applications and usefulness is at our command, in the sinusoidal mode, in the field of muscle stimulation alone.

General muscular weakness, local paralysis or paresis, lack of peristalsis, vaginal, rectal and vesical prolapse, due wholly or partly to lack of muscle tone, and vasomotor debility are conditions in which the sinusoidal has been most decidedly beneficial.

Aside from the features mentioned, this mode will allay pain, and is more serviceable in this way than the secondary, induced mode from a coil of many turns. It is most useful in painful pelvic troubles, including uterine inflammation, cellulitis, ovaritis, salpingitis, and congestion; neuralgic pains are relieved and spinal irritations are subdued by it; marked effects on tissue metabolism are manifest, and it causes increased oxidation and elimination of carbon dioxide and the excretion of urea. These effects are probably all secondary to, and dependent on, the increased muscular activity and analgesic influence due to the mode.

The slow sinusoidal mode is very useful in atonic conditions of the pelvic viscera, such as is so often found in old men, who cannot control the action of the bladder; also in those cases where the rectum is never entirely emptied, and in old chronic cases of prolapsus, and in subinvolution of the uterus. A few systematic treatments locally will pull

these organs back into place and get them to working properly, and many vague, indefinite and annoying symptoms will sometimes clear up and disappear as if by magic.

An Improved Sinusoidal Generator

The manner of employing the various applications will at once suggest itself to the experienced electrotherapeutist and so will not be mentioned now, but we will study a new apparatus, which is a most valuable addition to our armamentarium, in that it gives a wide range of strengths and number of cycles, and is not a controller but a generator. The general practician or the specialist who is looking for an exact means of applying galvanic and sinusoidal modes together or separately will find this a superior apparatus. (Fig. 3.)

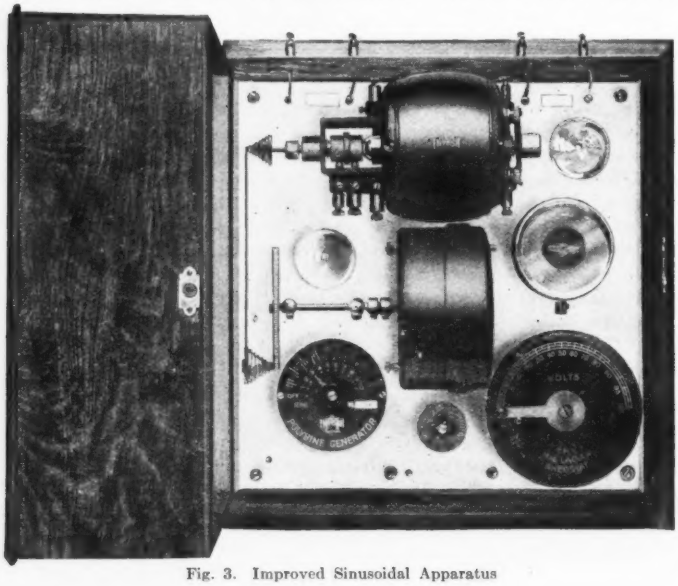

Fig. 3. Improved Sinusoidal Apparatus

It contains both a motor and a rotor generator which is under easy control alike as to speed and strength. The following drawings and explanations will be found simple and easily understood, and will give a complete understanding of the method of generation and control, at the same time conveying to the mind the difference between the various forms of the mode, from the simple to the most complex.

This apparatus fulfils all indications for application of the sinusoidal mode in a highly satisfactory manner. It supplies a slow sine wave ranging from 12 to 120 cycles per minute; a rapid sine wave of 1800 per minute; a superimposed wave consisting of the 1800-cycle rapid wave imposed upon a slow wave; a surging sinusoidal, somewhat similar in character to the former; a slow surging galvanic; a rapid surging galvanic; a combined galvanic and sinusoidal; and a mode for diagnostic lamps.

The slow sinusoidal mode is produced by revolving a pair of brushes against a wire resistance unit in the rotor, with a minimum of friction and wearing parts, thus obtaining a sine wave of geometrical exactness. The length of the sine wave, or, in other words, the frequency of alternation, may be varied from 12 to 120 per minute by shifting the belt into various grooves on the cone pulleys.

The supply mode which operates the apparatus drives a rotary converter with a double-wound armature which generates a direct mode of 125 volts and an alternating mode of 85 volts, 30 cycles, which are both "earth-free," or ungrounded, hence applicable in hydrotherapeutic work.

All modes obtained from this apparatus are controlled by means of the dial selector, which shows the name of each mode and the frequency plainly indicated on the dial. A single turn of the knob to the mode desired places the rotary converter in action and selects the proper modality. This feature makes the operation of this apparatus far simpler than some other sinusoidal machines, with their complicated array of switches.

The tension is regulated independently of the wave length or frequency by means of the rheostat, which places the strength absolutely at the command of the operator. The milliamperemeter, condensed type with shunt, scales reading 0—150 and 0—30, registers the oscillations of the sinusoidal mode, but not the milliamperage. It also measures the

approximate strength of the undulations of the surging galvanic as well as registering accurately the dosage of the straight galvanic.

All the parts described are mounted on a white porcelained steel base, which always looks bright and clean and can be made thoroughly aseptic. The apparatus is encased in a cabinet of polished, quarter-sawed, golden oak, measuring 19 inches square and 10 1-2 inches deep; the cover being fitted with beveled plate glass. The apparatus is equally adapted to be placed horizontally as a table-plate, and, if desired, can be placed on any small portable stand, thus making it available for use in several different rooms; or it may be attached to the wall in a vertical position, the oil-cups of the rotary converter being set at an angle so that they feed perfectly in either position.

The rotary converter is wound for the direct mode, which is required for operation of the apparatus. By installing a rectifier, the apparatus may be employed with the same satisfaction with the alternating mode as with the direct; the expense for maintenance being limited to new chemicals for the rectifier, and which rarely exceeds 75 cents per year.

The generator forms an ideal equipment for sanitariums and hydrotherapeutic institutions, as it is free from ground connection, and therefore is suitable for electric-bath application with the ordinary uninsulated tub.

Principle of Operation of the Rotor

The rotor mechanism consists of a porcelain base wound closely with high-grade resistance wire, against the surface of which revolve two carbon brushes attached to the rotor-arms. On the rotor-shaft is a pair of collecting rings connected with the brushes on rotor-arms, while two additional brushes make contact with the rings. These four carbon brushes are the only parts of the rotor needing replacement. The brushes attached to the rotor-arm revolve against a smooth surface of wire resistance, producing practically no friction; as they travel in a circular path the graduations of resistance merge together perfectly in the form of a sine curve of geometrical exactness.

By an ingenious gearing device the speed of the rotor may be reduced to as low as twelve revolutions per minute. The cone pulley on the rotary converter, which operates at 1800 per minute, is belted to a cone pulley with pinion engaging the toothed wheel on the rotor-shaft. When the belt occupies the grooves at the extreme left the slowest speed of the rotor is attained. By shifting the belt to the right the speed may be graded up to as high as 120 per minute, giving a corresponding frequency of alternation of the sine wave obtained from the rotor.

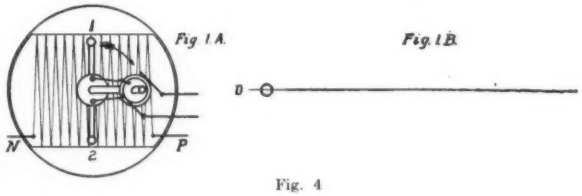

Fig. 4

In Figure 1-A we note the working parts of the rotor showing the resistance unit with convolutions of wire shown vertically, while the collecting rings on the rotor-shaft appear at the right. The rotor-arm is shown with brushes resting on one convolution of wire, no mode passing to the brushes at this point, hence the cut at the right, Figure 1-B shows the neutral line with no voltage. [See Fig. 4.]

As the rotor-arm begins to turn clockwise and the brushes leave the neutral strand of wire, the entire resistance of the rotor is in a circuit with the patient; but as it continues to revolve, the strands of wire are cut out of the circuit, one at a time; while the voltage gradually rises, as shown in Figure 2-B, until brush No. 2 reaches a position at the extreme left and brush No. 1 a place at the right, as in Figure 2-A; at which point the resistance has all been eliminated from the circuit and the voltage reaches a peak of the sine curve in Figure 2-B, where the full voltage is being delivered to the brushes. [Fig. 5.]

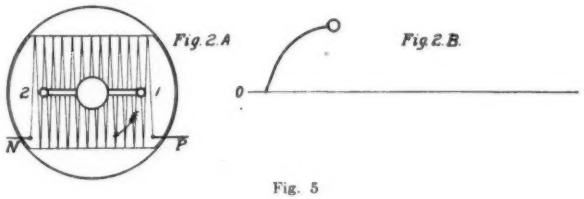

Fig. 5

As the rotor-arm continues to turn, the convolutions of wire are once more brought

into circuit gradually, while the voltage begins to recede to the zero line, as shown in Figure 3-B, until brush No. 2 reaches the upper position and brush No. 1 the lower place, as shown in Figure 3-A; both brushes touching the neutral strand of wire with no mode passing; at which position the neutral

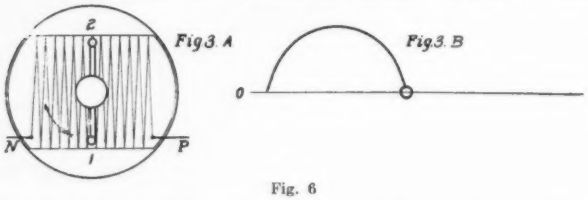

Fig. 6

line in Figure 3-B is again reached and the voltage is at zero. One-half the cycle has now been completed. [See Fig. 6.]

The rotor-arm continuing its revolution, brush No. 1 enters the negative side of the resistance unit and the voltage commences to increase in the opposite direction until the peak of the lower sine wave is reached, as shown in Figure 4-B, at which point brush No. 2 is at the extreme right and brush No. 1 at the left, as shown in Figure 4-A. [Fig.7.]

When the brushes complete their revolution and finally arrive at their original position, with brush No. 1 above and brush No. 2 below, as in Figure 5-A, the entire cycle of one sine wave has been completed, as shown in Figure 5-B. [Fig. 8.]

The Various Modalities at Command

Figure 9. Rapid sinusoidal, 1800 cycles per minute.

The 85 volts, 1800-cycles, alternating mode may be applied as a rapid sinusoidal, con-

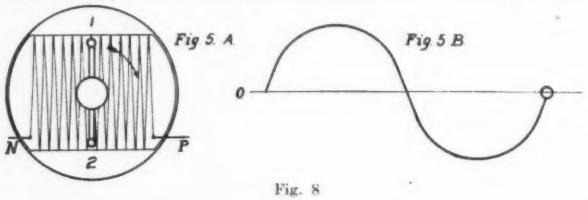

Fig. 8

trolling it by means of the rheostat, but without passing it through the rotor. The wave form of this mode is indicated in the figure marked 9. In all cases where the extremely rapid sinusoidal is indicated this modality will be found of great value.

Figure 10. Slow sinusoidal, 12 to 120 cycles per minute.

By passing the direct mode through the rotor a slow sinusoidal current is obtained, having a sine curve of absolute exactness. The frequency is variable from 12 to 120 cycles per minute by changing the position of the belt on the driving pulleys. The voltage may be regulated independently of the frequency by means of the rheostat. A change in the frequency, by shifting the belt, does not affect the strength of mode which the patient receives. The milliamperemeter does not measure the sinusoidal action, but it shows the frequency of oscillations—a valuable aid.

Figure 11. Surging sinusoidal action, 12 to 120 periods per minute.

When the dial selector is placed at "3," the 85-volt alternating mode of 1800 cycles per minute is sent through the rotor and the short, rapid sine waves of the initial mode are

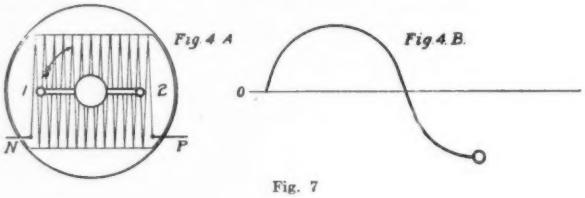

Fig. 7

delivered by the rotor in the form of a surging sinusoidal, each long sine consisting of a group of shorter waves, which rise gradually to the full potential and recede, in the effect of a crescendo and diminuendo. With this wave form it is possible to obtain cell stimulation by means of the minute contractions, as well as taking advantage of the tonic properties of the long waves. The ratio of short to long waves is 150 to 1 at the lowest speed, and may be varied by shifting the belt.

Figure 12. Superimposed wave, 12 to 120 periods per minute.

By placing the dial selector at "4," a connection is made with the neutral pole of the rotary converter and a surging direct mode of 1800 periods per minute is obtained and passed through the rotor, thus producing the superimposed wave shown in Figure 4. This mode partakes of some of the

characteristics of the surging sinusoidal shown above, with the exception that a more distinct polar effect is noticed, as a change of alternation can be distinctly felt.

Figure 13. Combined galvanic and sinusoidal, 1800 cycles per minute.

By combining the 110-volt direct mode from the supply wires with the 85-volt alternating mode obtained from the collecting rings of the rotary converter, a combined galvanic and sinusoidal is produced, as shown above, by placing the dial selector at "5." This mode partakes of the chemical properties of the galvanic with the highly stimulating effects of the sinusoidal. The frequency of the sinusoidal is 1800 per minute and is not variable. This is the only mode obtained from the generator which is grounded, hence it is not suitable for use in hydrotherapeutic work, excepting in a specially insulated bath-tub adapted to the purpose.

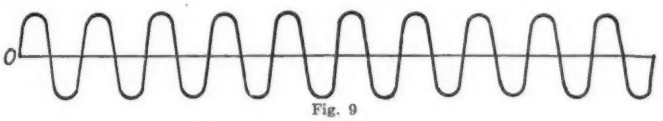

Fig. 9

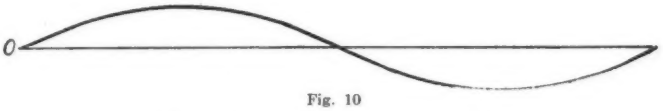

Fig. 10

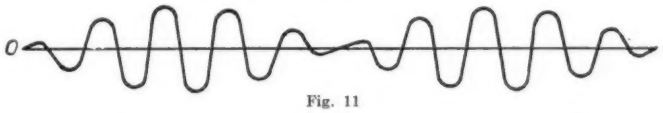

Fig. 11

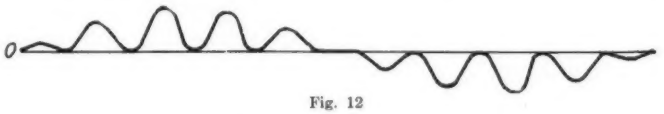

Fig. 12

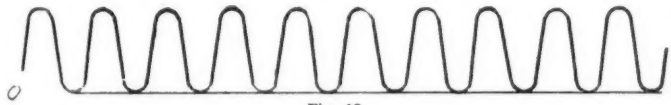

Fig. 13

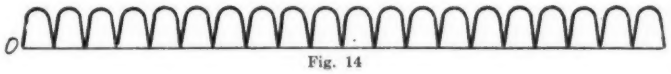

Fig. 14

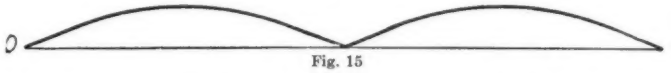

Fig. 15

Figure 14. Rapid surging galvanic, 1800 periods per minute.

The mode obtained by tapping the neutral pole of the rotary converter when passed directly through the rheostat produces a wave form as illustrated in Figure 14. This produces a rapid surging galvanic mode of 1800 periods per minute, which is not variable. This is perfectly controlled by the rheostat, while the meter shows the average length of the undulations. This mode partakes of practically the same properties as the rapidly interrupted galvanic obtained from the rheotome on a wall-plate, but is much more uniform in character.

By passing the 125-volt direct mode from the rotary converter through the rotor, a slow surging mode, as shown in Figure No. 15, may be obtained. This possesses the wave form of the upper half of the slow sinusoidal cycle, but combines with it the polar properties of the galvanic. The frequency of this mode may be varied by changing the belt, while the strength is controlled independently by the rheostat, and the meter shows the average length of the undulations.

The 125-volt direct mode from the rotary converter may be passed directly through the rheostat when the dial selector is placed at "8," hence a galvanic mode is made available, which is accurately measured by the meter and indicated by the pole changer.

This same galvanic mode may be used to light diagnostic lamps by placing the dial selector at button "9," when the meter is excluded from the circuit, enabling one to employ almost any kind of electrically lighted instrument, controlling the light perfectly without danger of burning out.

When the dial selector is placed at "10," the alternating mode from the collecting rings of

the rotary converter is made available at a special pair of binding-posts marked "A. C." Parties having only a direct mode in their office will find it convenient to utilize the rotary converter as a transformer for the operation of any alternating-mode apparatus within the capacity of this part of the apparatus. An alternating-mode cautery can be very satisfactorily energized in this manner.

The Principles of Bacterin Therapy

By J. FAVIL BIEHN, M. D., Chicago, Illinois

SUCCESS in the application of bacterins by the clinician is possible only when he understands all the principles involved. The essential idea underlying this mode of treatment is that, by injecting antigens (toxins or bacterial bodies) into healthy tissue, we stimulate that tissue to produce amboceptors (antibodies, antitoxins, opsonins, etc.), which then will be carried in the circulation to the diseased tissue, thereby promoting recovery.

The Theory of Active and Passive Immunity

Bacteria contain toxins, and when these are injected the patient produces his own antitoxins. There also are produced by other antibodies, such as opsonins, precipitins, agglutinins, etc. Thus the patient provides his own immunity. It is, therefore, an active immunity; and, being the result of the injection of bacterins, it is not natural, but acquired. So bacterins produce an active acquired immunity which lasts in many cases for years.

This state is in contradistinction from the conditions established by the injection of antitoxin (antibodies produced in some other animal by the injection of toxins), which results in passive immunity. This also is an acquired state, and is known as passive acquired immunity; the patient being the passive recipient of preformed antibodies that neutralize, destroy or render harmless the toxins of the corresponding bacteria. Passive immunity lasts only a few months at most.

Bacterins, therefore, call upon the patient to produce his own antibodies, to make his own antitoxins. Antitoxic serums do not impose any such labor upon him, as he is simply the passive recipient of preformed neutralizing substances that have been actively produced by some other animal.

Antitoxins (serums) neutralize the corresponding toxins, and we can infer that their action begins immediately after they come in contact with these toxins.

Bacterins, however, stimulate the tissues, and, if the patient is capable of responding, antibodies are produced that can readily be demonstrated in his serum, which then is practically an antitoxin.

Some time is required for the production of these antibodies by the patient, and during that interval there is no neutralizing action. Then, too, the first antibodies formed are consumed in neutralizing the injected bacterins. Following this, there is normally an overproduction of these antibodies, which then appear in the serum.

From this we can see that one of the prime requisites in bacterin therapy is, that the patient must possess sufficient healthy tissue capable of producing antibodies when stimulated, and that he must also be capable of withstanding additional antigen and of successfully resisting the disease until he has produced antibodies in excess. For these reasons it is essential that bacterins be employed early in the disease, while the patient can still respond, and not—as too many, unfortunately, are inclined to do—as a last resort after all other medication has failed.

But to be assured of success, other remedial measures must also be instituted; namely:

1. General measures, those looking toward advancing the entire well-being of the patient; that is, correcting existing pathological conditions or functional aberrations other than those due to the infection. These must always receive careful attention, especially must the elimination, circulation, and so on, be carefully supervised. Bacterins cannot be expected to produce a cure in patients whose vital forces are taxed to the utmost in combating the toxic materials absorbed from a fermenting and putrefying mass of food-residue in the intestine.

2. In addition, there are certain particular procedures that will aid bacterin treatment. These might be called adjuncts. They will, many times, promote recovery, when, without them, in the majority of instances failures will result.

I mean, first, surgical procedures, such as the evacuation of abscesses, the removal of sequestra, of foreign bodies, and so on. Next I refer to efforts for increasing the lymphatic circulation by the administration of citrates or acetates, either as such or in the form of citrous fruits, as originally suggested by Wright. It is probable that the lymph possesses antibodies in the highest degree. Further, there is the application of hot wet-packs (Bier's hyperemic treatment), to increase local circulation in the diseased areas, especially in the skin, where the circulation is poor. Other local treatments or applications are not contraindicated. It is also advisable to administer nuclein in large doses, in order to increase the number of leukocytes; for it can readily be understood that, notwithstanding there is an increased amount of opsonins as a result of the injection of bacterins, the bacteria must be phagocyted and destroyed even after they are opsonized. Thus many failures occur due to a lack of active leukocytes. Therefore it is necessary in most cases to give nuclein, to stimulate, as already stated, the production of leukocytes in order to phagocyte the bacteria.

Indications for Bacterin Treatment

The corresponding bacterins are indicated in all bacterial infectious diseases; but, since the bacterins have a specific action only, it is absolutely essential to know the particular organism or organisms causing the disease under treatment and to give the corresponding bacterins. Thus, for instance, bacillus-coli bacterins are of value only in diseases caused by the bacillus coli; they are practically valueless in diseases caused by other organisms. Hence, there are no bacterins for such ailments as boils, furuncles, and the like, for these conditions are not always produced by the same organism or group of organisms. In one case streptococci, in another case staphylococci (either albi or aurei) may be the etiolgical cause. The first form will be benefited only by the bacterins containing streptococci, while the second responds only to one containing staphylococcus albus, etc. However, a mixed bacterin may be employed, and will prove beneficial, provided it contains the specific organisms responsible for this particular diseased condition.

Therefore, unless the exact etiologic cause is determined and the corresponding bacterins are administered, failure will surely result. It is quite necessary, in case several pathogenic bacteria are acting together in producing a disease, that the corresponding bacterins for all of them be utilized; and, further, if the infection should change as a result of the invasion of other organisms, unless a bacterin for these organisms also is used, a complete cure may not be obtained.

Contraindications and Dangers

Practically, bacterins are contraindicated only in the cases of such patients as are not capable of reacting to an additional amount of bacterial substances—patients who are overwhelmed and, hence, are not capable of setting up in themselves an active immunity. Under these circumstances, the antitoxic serums, if available, should be employed.

The dangers associated with bacterin-therapy, and to be remembered, are as follows:

1. Dangers dependent upon the operation, or injection, itself; namely, the danger of infection. The injection of bacterins requires greater care than does the ordinary hypodermic injection. The syringe must be absolutely sterile, and the site of injection should be thoroughly disinfected, preferably by means of tincture of iodine or an iodine solution devised for that purpose.

2. The danger of overwhelming the patient with additional toxic bodies, as referred to under contraindications.

3. The production of severe constitutional reactions. This can usually be prevented by proper dosage, as discussed under that heading.

4. Anaphylaxis, a complication which, while fortunately very rare, nevertheless does occur and always must be considered as a possibility. To avoid this state, the second injection is to be within ten days; the period between the first two injections being, preferably, not more than seven days, thereby preventing a sensitizing of the patient.

Dosage, and Other Details

The dose varies with every patient, depending upon his vital resistance, irrespective of what infectious disease he may have. The first dose is a guide. Always begin with a relatively small dose. If there is no improvement, then either increase the dose or repeat at short intervals, or both, but only if the clinical reaction produced is slight. If the reaction is severe—high fever, greatly aggravated local or general symptoms, with marked depression—then decrease the dose or increase the interval between doses, or both. A marked clinical reaction is always to be avoided.

In acute cases, the dose should be small and frequently repeated, usually every two or four days, or oftener. In chronic cases, larger doses may be given, and every four to seven days. This rule does not hold, however, for any considerable number of cases, and must be varied according to indications.

Site of Inoculation

Bacterins usually are given subcutaneously, although some prefer to inject deep into the muscles, thereby avoiding a skin reaction, the muscles being much less sensitive than the superficial tissue; but the strictest asepsis is demanded, owing to the danger of producing deep-seated abscesses. Intramuscular injections are best given into the supraspinatus muscle on the left side or in the gluteal region. Subcutaneous injections may be given in any part of the body where there is loose subcutaneous cellular tissue.

No special subsequent treatment is required. A feeling of lassitude, usually occurring within twenty-four hours after the injection, requires no special treatment. A saline laxative on the morning following the injection generally will correct this condition.

Control, at present, must depend upon the clinical symptoms. The determination of the opsonic index is not necessary, and for several reasons is not practicable. First, the present method of determining the opsonic index is very unreliable; results vary so greatly that its value is questionable. Second, the opsonic index is at best only a rough indication of the degree of immunity. Opsonins are not the only antibodies produced, and may or may not have anything to do with the immunity. Some day the opsonic index may, under improved methods, be practicable and of value, but at present clinical signs and symptoms are a more reliable guide.

The negative phase immediately following the injection of bacterins does not correspond to the period of clinical reaction, but precedes it by several hours. For all practical purposes, however, the negative phase may be entirely ignored.

Stock-bacterins generally give satisfactory results. If they do not, it is because the appropriate bacterin is not used, that is, the etiologic cause of the infectious disease has not been recognized and the corresponding bacterin injected; or the stock-bacterin used was not a polyvalent bacterin containing the particular strain of the microorganism causing the infection. A good polyvalent stock-bacterin properly employed will fail but very rarely.

If autogenous bacterins are required, they should be prepared by an expert bacteriologist, preferably in a laboratory under Government supervision. Only in this manner can one be reasonably sure of avoiding serious dangers and complications.

Some of These Days

By FRANK L. STANTON

SOME of these days all the skies will be brighter;
Some of these days all the burdens will be lighter;
Hearts will be happier, souls will be whiter,
Some of these days!

Some of these days, in the deserts upspringing,
Fountains shall flash while the joy bells are ringing;
And the world—with its sweetest of birds—shall go singing
Some of these days!

Some of these days! Let us bear with our sorrow!
Faith in the future—its light we may borrow;
There will be joy in the golden tomorrow—
Some of these days.

THERAPEUTIC NOTES

ATROPINE TO RELIEVE IODISM

Atropine will relieve the symptoms of iodism in a way which the uninitiated patient considers marvelous. It is perhaps the only actual instance of a "cold" cured in an hour. (*St. Louis Medical Review*, November, 1912).

GELSEMIUM IN PELLAGRA

Dr. Roy Blosser reports five cases of pellagra (*Atlanta Journal-Record of Medicine*, November, 1912) in which symptoms of nervous irritation were relieved promptly by gelsemium. Two of the patients had complained of pain or burning in the feet, in two cases the gastric distress was annoying, in another one frequent micturition. All these symptoms yielded to the drug. Gelseminine would be the most satisfactory form for administering this drug.

THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM

French physicians still persist in believing that the salicylates are the most effective means of treating rheumatic affections. In a paper published in the *Gaz. des Prat.*, 1912 (Cf. *British Medical Journal*, March, 1912), Dr. Lemoine recommends the use of sodium salicylate as a gargle, on the supposition that inflammation of the throat is one of the earliest symptoms of rheumatism. For this purpose, he dissolved 20 Grams of sodium salicylate in 1000 Grams of water.

For internal use, he prescribes sodium salicylate, 0.60 Gram; sodium bicarbonate, 0.40 Gram. Or, sodium salicylate, 10 Grams; syrup of currants, 80 Grams; water, 70 Grams. This should be given both during the day and night, so that an adult patient receives from 6 to 8 Grams in twenty-four hours, unless the drug is not well borne.

The salicylate of sodium is contraindicated if nephritis exists and if the urine contains casts. It should also be omitted in myocarditis and if the pulse is irregular; but if the endocardium or pericardium are implicated the salicylate may be given. Cases associated with delirium and other signs of cerebral excitement contraindicate the salicylates, and pregnancy calls for caution in their employment.

LACTIC-ACID BACILLI IN LOCAL TREATMENT

Pouliot (*Revue Prat. d'Obstétrique et de Gynécologie*, Sept., 1912, p. 257) observes that the vogue of lactic-acid bacilli in treatment and prophylaxis of intestinal troubles seems to be waning. This method of internal treatment long continued is said to lead to demineralization of the organism and hence to invite tuberculosis. On the other hand, lactic-acid bacilli in local application seems to be acquiring more and more of a footing in gynecology and obstetrics.

The Bulgarian bacillus produces the largest amounts of lactic acid. Other strains average only 10 Grams to the liter of milk, while the Bulgarian strain produces up to 32 Grams. In local applications they rapidly clear off gangrenous and ulcerative patches, when healing proceeds smoothly. Pouliot regards the method as having a wide field of effectual action in accessible gynecologic and obstetric lesions. (*Jour. A. M. A.*, Nov. 9, 1912, p. 1751.)

EXTERMINATING LICE IN WOMAN PATIENTS

Whitfield (*Lancet*, Dec. 14, 1912) recommends steeping the hair for ten minutes in a 1:400 phenol solution, taking care to see that the nape of the neck and the hair over the ears are well soaked. The patient lies on her back with the head hanging over the edge of the bed, the hair in a basin. After ten minutes the hair is wrapped, without drying, in a towl for an hour.

THE ODOR OF CARCINOMA

Dr. J. R. McClintock, of Kansas City, Missouri, writes us that he has the best success in getting rid of the terrible odor of cancerous ulcers by injecting into the mass one or two syringefuls of a weak solution of carbolic acid containing ten to twenty minims

to the ounce. He finds this same solution a desirable local application in diphtheria and in septic conditions generally. Internally he uses it in the treatment of diarrhea and during continued fevers, while a stronger solution is used for injection into buboes and carbuncles.

USE THE RIFLE!

Should you ever find your faith in drugs wavering, lay down the hard-worked shotgun and use the rifle for a change. Nine times out of ten the nihilist doesn't know the formula of the mixtures he prescribes. (*St. Louis Medical Review*, November, 1912.)

CALCIUM SULPHIDE IN DIPHTHERIA

Calcium sulphide, which already twenty-five years ago was prescribed by the French dosimetric school as a remedy for diphtheria (*Compendium de Médécine Dosimétrique*, 1886, p. 238) has recently been reintroduced for this purpose by E. L. Abogado (*Cronica Medica Mexicana*, and *Merck's Report*). Mild attacks were cured by the sole use of the sulphide, while in grave cases it has proved a valuable adjuvant to the antitoxin treatment. It is not improbable that in cases of complication its efficacy may extend to the associated microbes, with respect to which antitoxin is powerless.

Abogado administers to children up to 1 year old 0.01 Gm. (gr. 1-6) per hour; those 1 to 3 years old are given 0.01 Gm. (gr. 1-6) every half hour; children 3 to 5 years old may be given 0.01 Gm. (gr. 1-6) every quarter hour; children above this age, 0.01 to 0.02 Gm. (gr. 1-6 to gr. 1-3) every quarter hour. Adults may be allowed to take 0.6 Gm. (grs. 10) within twenty-four hours. In the opinion of this writer the preparation does not, if prescribed in this manner, give rise to any unpleasant secondary effects.

AUTOGENOUS BACTERINS

D. J. Glomset (*Iowa Medical Journal*, November, 1912) says that autogenous vaccines, from a theoretical point at least, are of value only when the cells are not producing their maximum amount of immune bodies, while the value of these vaccines depends on the production of an active immunity, and for that reason some time is always necessary for the establishment of a cure.

In examining the recent literature, it at once becomes apparent that autogenous vaccines have been employed against a great variety of widely differing troubles. The author calls attention to the fact that autogenous vaccines share the fate of other new remedies, of being used by enthusiastic practitioners against almost any disease they have been dealing with, and of being used indiscriminately and without any attention to proper indications and limitations. The results of such procedure can be foreseen, and they have served to postpone the proper appreciation of this mode of treatment.

For the purpose of determining the indications and contraindications for bacterin-therapy, the author groups the various diseases in three classes:

Class 1 includes such diseases as true septicemia, ulcerative endocarditis, general peritonitis, and eczema, all of which, with the exception of the last one, are characterized by a profound toxemia, and on account of which he considers vaccine-therapy to be contraindicated.

In class 2 the author includes such diseases as pyemia, erysipelas, vulvovaginitis, chronic otitis media, impetigo, osteomyelitis, empyema, cholecystitis, ulcerative colitis, streptococcic infection in scarlet-fever, and mixed infection in advanced tuberculosis. These diseases may under certain conditions be treated very successfully with autogenous vaccines, but they include many acute infectious conditions which have a tendency to spontaneous recovery or yield readily to other forms of treatment. For this reason it is difficult to determine the actual results obtained from administration of vaccines.

Nevertheless, in chronic vulvovaginitis of children the author sees a type of disease in which autogenous vaccines are distinctly indicated, and in otitis media, also, excellent results have been obtained in the subacute stages. In streptococcus complication of scarlet-fever, the results are doubtful, according to the author, in the acute condition, but distinctly favorable in the chronic.

Class 3 contains such affections as furunculosis, carbuncles, acne vulgaris, pyorrhea alveolaris, gonorrheal arthritis, some forms of osteomyelitis, mastoiditis, coccogenous sycosis, and certain chronic types of impetigo, as well as pyelitis and cystitis. In this class autogenous vaccines are not only indicated, but they are the treatment of choice in most instances.

Most of the diseases coming under this group are more or less localized chronic or

semichronic suppurative, and it is indeed in these chronic granulomatous conditions that the treatment yields such brilliant results. Carbuncles and boils which have stubbornly resisted any other kind of treatment fairly melt away after the second dose of a vaccine. Acne vulgaris, too, frequently responds in a truly marvelous way to the acquired immunity produced by the vaccines. In this disease, however, the treatment must be continued for weeks in order to prevent possible recurrence.

The most stubborn instances of gonorrheal arthritis often respond in a striking way to the treatment with vaccines. This is also the case with pyorrhea alveolaris, which is the most unsatisfactory disease dentists have to treat. The author has seen a number of cases of this disease where rapid and permanent recovery occurred. In case of a deep-seated coccogenous sycosis, too, prompt and complete recovery follows the use of vaccine. He has also been told that vaccines are being employed against the ringworm type. Finally, cases of impetigo which resist any other treatment yield rapidly, as a rule, to autogenous vaccines.

ARE BACTERINS DANGEROUS?

D. J. Glomset (*Iowa Medical Journal*, November, 1912) says that the reaction following the injection of a first dose of bacterins may be from nothing to a condition simulating shock. It differs with the dose given and the susceptibility of the individual. So far as the author is aware, no fatal results have followed the injection of the vaccine, and if the dose is proximate to the resisting power of the individual, a local redness and slight tenderness is all that appears after three or four hours; this lasting from twenty-four to forty-eight hours. This reaction often is followed by a sense of wellbeing and comfort, which is associated with the first improvement in the disease. On the other hand, if the dose is too large, the slight local redness changes into a marked swelling of the extremity, great tenderness over the area inoculated, severe pain in the affected limb, headache, backache, and sometimes chills and even fever.

VARIATION IN TINCTURE OF DIGITALIS

During three years Alexander Goodell (*Pharmaceutical Journal and Chemist*) examined twenty-three samples of tincture of digitalis, freshly made by chemists of repute. These samples were all tested out carefully upon the frog and it was found that 12 were of average potency, 6 were under the average, and 5 over the average of strength. Of those under strength it was found that to equal the maximum dose of 15 minims the following doses would be required of these preparations: 25, 22 1-2, 22 1-2, 22 1-2, 20, and 18 minims; of those over strength, the following doses were the equivalents of the usual 15-minim dose: 10, 9, 8, 7 1-2, and 4 minims. From this it will be seen that there was a difference of more than 600 percent between the strongest and the weakest digitalis tinctures offered by reputable English pharmacists. As Dr. Goodell remarks regarding these over-strength (and under-strength) preparations, "in view of the serious conditions for which digitalis is prescribed the possibility of their existence in the hands of the dispenser is sufficiently alarming."

DIPHTHERIA ANTITOXIN IN HEMOPHILIA AND HEMORRHAGE

The serum investigations of the last years have shown that a heterogenous serum is an excellent means of increasing the coagulability of the blood and that therefore it offers a ready means of controlling hemorrhage, whether in hemophiliacs or others. Since such heterogenous serum as such is not always available, it is well to remember that we have it constantly on hand in the form of the diphtheritic antitoxin. Dr. H. Krauss reports (in the *Münch. Med. Woch.* for 1910) an experience in the case of two brothers who were hemophiliacs and in whom obstinate bleeding occurred after the extraction of a tooth and from a hemorrhage from the kidney, respectively. It is well to remember this emergency-remedy in severe hemorrhage.

CALCIUM ACETYLSALICYLATE

Certain advantages accrue to a soluble aspirin, these being its ready ingestion and its slight corrosive action upon the gastric mucosa. Its reaction is neutral on account of its content of 10 percent calcium added to the 90 percent aspirin. Chemically it is calcium acetylsalicylate. It is soluble in water and yields a practically tasteless solution. No unpleasant effect on the gastrointestinal tract or on the kidneys had been observed.—*Therapeutische Monatshefte*, 1912, p. 660.

GLEANINGS from FOREIGN FIELDS

TRANSLATED BY E. M. EPSTEIN, M. D.

Antitoxins and Antitoxin Therapy

ANTITOXIN-THERAPY has its beginning with the elaboration of the immunity problem. In his researches of acquired immunity, Pasteur started from the observation that many infection-diseases attack their subjects only once, and that a very light affection, such as a light typhoid fever or a slight attack of cholera, affords protection against a second attack equal to that of a more severe one. In his systematic laboratory experiments, Pasteur sought for preliminary treatments which, like the spontaneous natural treatments, might confer immunity by slight affections without severe damage. Pasteur tried to attain his aim experimentally, as Jenner attained his end empirically by utilizing the accidental observation that harmless cow pocks protect against the dangerous human pocks.

Pasteur succeeded first, in 1880, in the case of the socalled chicken-cholera, and soon after in anthrax, in immunizing animals by inoculating them, with bacteria artificially attenuated in their virulence, against the fully virulent bacteria which cause the disease.

Of especial importance for Pasteur's subsequent success in inoculation for hydrophobia, was the discovery that the virulence of the microbes is modified by passing from animal to animal. Soon, too, it was noticed, moreover, that attenuated bacteria were not the only means of immunization, but that the soluble products of the metabolism of the bacteria, which we now call toxins, can be used for the same purpose. This was first proved by the American scientists Salmon and Smith during an epidemic of hog-cholera in the years 1885–86. Immunization against the diphtheria and tetanus bacilli by the aid of culture filtration followed by Roux, Briger, and Kitasato.

In other cases, besides the two mentioned, the immunization by the metabolic products of living bacilli does not succeed. If, however, the bacilli are killed, then immunization can be secured with the substances contained in their dead bodies, which substances are the socalled endotoxins. This was first shown by Pfeiffer as to the cholera bacillus.

The work on the problem of immunizing was decidedly aided by the discovery that gradually increased quantities of bacterial substances (culture filtrates) in preliminary treatments of an animal not only could immunize it against the living disease exciters, but that those preliminary treatments could protect the animals against large amounts of the virus itself. With this discovery in hand, the problem could then for the first time be approached with a quantitative consideration.

Chauvean established the fact soon after Pasteur (1881) that animals could be immunized with fully virulent disease exciters. The natural protective powers of the organism maintain their preponderance in the struggle against the bacteria when the number of the latter is small or when the conditions for their increase are unfavorable. If the organism prevails over the infection or if it prevails over the intoxication (by means of toxins), then the organism becomes "immune," and in that case, in fact, by the formation of antitoxins and other protective bodies, i. e., by the activity of its own powers. And because in this instance the organism becomes immune of its own powers, therefore is this form of immunity designated as "active immunity."

The specific protective substances formed in the active immunity circulate in the blood. This we know since its discovery by Behring. When these ready-made protective bodies are introduced into another organism, then they may cause a "passive immunity." It is called passive, because it arose without any effort of the animal treated and only by the incorporation of protective bodies that were formed in another organism.

In the active immunity there is always a latent stage before the immunity takes place, so that the protection against a sick-making dose does not occur until the fifth or tenth day of the treatment (see v. Dunger: "Die Antikoerper," Jena, 1903); but in the passive immunity the immunity is transferred at once with the protecting serum. But the active immunity has the advantage of lasting very long, because the reaction of the cells which conduce to the formation of protective substances continue a long time and enable the organism to replace any loss of protective bodies. Passive immunity lasts a much shorter time, because the bodies which originated in an actively immunized organism are foreign to the passively immunized animal body and are eliminated or oxidized, and their loss is not replaced.

Active immunity, aside from vaccination against variola and lately also against typhoid fever, is employed principally in the treatment of rabies.

Rabies. The exciter of rabies is as yet unknown. Its infection is especially distinguished by its long incubation time. Pasteur found that the incubation time is much shortened when the virulent substance (the central nervous system of an animal affected with rabies) is inoculated directly into the central nervous system of the animal experimented upon, rather than in any other part of its body. This fact depends, as we now know, upon the mode of distribution of the virus which reaches the central nervous system from the point of inoculation or, in rabies, from the place bitten being the point of its attacking activity by the way of the peripheral nerves, and the disease begins then only when the virus has reached the centers of that system.

The establishing of this fact by Baber, de Vesta, and Zagari leaves the question still unsettled whether the virus itself is transmitted in the path or the products which the virus produces in the nerves. But since it is settled by Meyer and Ransom that viruses of tetanus and diphtheria are transmitted by the nerves, we may assume that the shortening of the incubation time when the virus of the rabies is directly inoculated into the central nerve system also depends upon the shortening of the transmission time.

The more virulent the infection matter is, the shorter also is the incubation time. But even the most virulent virus takes a certain time for its transmission (Pasteur), and this ndepeds upon the length of nerves passed through, and amount in the rabbit to from seven to eight days, and in the guinea-pig from five to six days.

By proper passages through an animal organism or by exposing the infection material to dry heat for various periods, Pasteur obtained a series of viruses of various incubation periods up to the fully virulent virus (*virus fixé*). By preliminary treatment with the weaker viruses, the animals experimented upon became at last immune against the strongest virus.

In active immunity protective substances are found in the blood since the serum of immune animals is able to protect other animals by conveying it into them (Baber and Seff, *Annales de l'Institute Pasteur*, 1889, Bd. 3). We lack, however, the knowledge of the exciters, and we can not, therefore, decide whether the protective bodies that arise act against the viruses of the exciters of rabies or against the rabies itself. (Compare Marx on this subject in Kolle-Wassermann's "Handbuch der Infections-Krankheiten," Bd. 4, s. 1264).

The success, however, of the treatment of rabies is undoubted, and it takes place after the infection; so we have to assume, therefore, that the protective bodies which are formed by the treatment are able to protect the nervous system against the toxins that are formed at the place bitten, because the proliferation of the exciters and the production of the virus at the place of infection come about very slowly.

Treatment with *tuberculin* also depends upon active immunity. The tuberculins are endotoxins which can be extracted from the bacilli only after their death. The various preparations which are in use are filtered extracts. ("Old tuberculin" consists of glycerin and water in which the deadened parts of bacilli cultures are dissolved; "new tuberculin" consists of minutely triturated, dried, and pulverized bacilli bodies themselves.) With his new tuberculin, Koch was able to immunize animals, which he experimented upon, against a fatal infection with tubercle bacilli.

The introduction of the tuberculins sets in action general as well as local reactions in the organism which has become affected with tuberculosis. It is upon the varied intensity with which tuberculin produces reactions in normal men and animals, on the one hand, and in those who are affected with tuberculosis, on the other, that the significance of the tuberculin test in its various forms depends. Tissues that are diseased with tubercle show a similar hypersensitiveness

against other substances also, as for instance cantharides and albumin; but there are here such quantitative differences which show the tuberculin reaction to be specific. (Compare "Pharmakologie der Entzuendungsvorgaenge.")

Serum therapy rests on the transferrance of protective substances that were formed by active immunity in one organism (animal) from that animal to another. Before discussing the foundations of serum treatment and the limits of its efficiency, it is next to indispensible to enter upon our present-time conceptions of the nature of the toxins and antitoxins, and their mutual relations to each other.

The conception of the toxins originated when it was found that the pathogenic microorganisms contained strongly active substances whose toxicologic connection was recognized. Next there were found in the filtrates from bacterial cultures soluble poisons which evoked symptoms like those which the exciters (microorganisms) themselves evoked. (Roux and Yersin, Brieger and Fraenkel.)

Toxins are poisons which produce their specific counter poisons—antitoxins—in the organism. We know that toxins either do not dialyze at all or do so with difficulty, hence they are either themselves colloidal substances or, by becoming joined to albuminous bodies, get the character of colloids. They are mostly very sensitive to heat, light, and air, and are generally of an unstable chemical nature. They may possibly be of an albuminous character, for they share in just those characteristic qualities in the organism which go to incite the formation of substances which react with them specifically and also with unpoisonous albuminous bodies so far as they reach the blood unaltered. The toxins are attacked by the enzymes, the same as the albuminous bodies are; a fact which explains their relative harmlessness when ingested by the mouth, regardless of the slight absorbability of a few of them.

The next substances with which the toxins present an analogy are the *ferments*, of whose chemical nature we know just as little. These also evoke the formation of specific antiferments in the organism, and are characterized, like the toxins, by attacking a specific substratum. Like the ferments, the toxins, too, are perhaps of a kind of protoplasm, i. e., they still possess the qualities of living albumin.

All that we know of the toxins is limited therefore to their poisonous effect and their ability of starting, or inciting, the formation of the specific antitoxins in the organism. Poisons of this kind originate not from the metabolism of the bacteria alone. Animal poisons behave in the same way; thus, for instance, the poison of the toad, the spider, the snake, the scorpion, the bees, and some fish-poisons. There are also socalled phytotoxins [vegetable toxins], such as ricin in the ricinus-seed, crotin in croton-seed, abrin in jequirity.

Antitoxins, for the discovery of which we are indebted to Behring and Kitasato. (*Deutsche Medizinische Wochensch.*, 1890, and *Zeitschr. f. Hyg.*, 1890.) They showed, in 1890, that the active immunity, of the animals experimented upon, against tetanus and diphtheria could be transferred to other animals by the serum of the blood of the actively immunized animals. Soon after, in 1891, Ehrlich was able to establish the fact that a similar behavior exists in poisoning with ricin.

The serum from the blood-giving animal contains not a trace of the poison which might in some way produce active immunity in the second (the receiving) animal also. In active immunization there must, therefore, originate a new agent either from the poison or from the cells of the body, or from both conjointly, which new agent reacts with that toxin specifically and which serves to produce active immunization.

What is it, then, that we know of these antitoxins? Of their chemical nature nothing is known. But in all probability we are dealing with some colloid substances, compounds whose molecular weights exceed considerably those of the toxins—as Arrhenius and Madsen conclude from a comparison of their diffusion rapidity. The antitoxins are also chemically unstable substances, still they are generally more capable of resistance than the toxins. Many of the antitoxins will withstand a temperature of 60° C. (140° F.) and are destroyed only at 80° C. (176° F.), according to the salt-contents. Against acids and alkalis they are more resistant than the toxins; they also are not so liable to decompose spontaneously by air and light as the toxins.

The antitoxins, therefore, can at present be characterized only biologically. They may be described as reaction products of the organism which originate as a result of the action of the toxins, and react with the originating of the toxins. This reaction abolishes the action of the toxins. Of any other action of the antitoxin we know nothing.

Next of importance to note is the specific nature of their power of protection. An animal which has been immunized against diphtheria can, by its serum, make harmless diphtheria toxin only; it cannot make harmless tetanus toxin in the test tube with its diphtheria antitoxin; it protects other experimental animals against a lethal dose of diphtheria toxin alone, and not against tetanus toxin.

To explain this behavior of antitoxin against toxin, it might have been thought that both antitoxin as well as toxin act upon those bodily cells that are sensitive to poison, and that the antitoxins, as Buchner assumed, by a preceding injection of both at the same time (or by trying a mixture of both) are able to hinder the action of the toxins by a physiological antagonism. We now know that the view held by Ehrlich and Behring is the correct one, namely, that the antitoxin does not influence the cells of the body, but reacts with the toxin—which is not destroyed by the antitoxin, as it was formerly believed to be.

The reaction of these two bodies consists, rather, in a mutual binding of each other, and the experiments of Ehrlich with ricin and diphtheria poison have shown this binding takes place in definite proportions. The reaction requires a certain time and is accomplished quicker at a higher temperature than at a lower. Whether this mutual influence of toxin and antitoxin upon each other is in the manner of a salt formation by an acid and a base, in which there is a reversible combination in both, or whether this combination is merely a difficult one, is still the subject of very lively discussion. (Arrhenius, "Immunochemie im Ergebniss der Physiologie," 1908, Bd. 7, p. 480.)

(*To be continued.*)

DOSAGE OF RADIUM EMANATION

Dr. P. Mesernitzki, of St. Petersburg, from the experiments he made in the Curie laboratory at Paris, draws the following conclusions: The emanation from radium by no means is an indifferent gas for the human organism, and it should be carefully dosed when administered internally. Generally speaking, it may be given in from 1000 to 10,000 Mache units; but it is best to begin with small doses, 100 Mache units, since some persons react strongly to small doses. It should not be taken on an empty stomach. In the test tube sodium chloride can be decomposed up to ammonia, especially by the *alpha*-rays. The exact relations between the ammonia and the intervening products can not be determined because ammonia itself may be destroyed by radium emanation. In gout these emanations effect an increase of the purin bodies in the urine.—*Therap. Monatsh.*, 1912, p. 665.

ABSORBABILITY OF SALT SOLUTIONS

Salt solutions are absorbed most readily in Retzius' space (prevesical). Dr. D. Schouten says that one liter will be absorbed there in from nine to ten minutes; hence the painlessness of the injection there.—*Therap. Monatsh.*, 1912, p. 664.

GERMAN NOSTRUMS

Under the name of coco drops, a druggist in Germany compounds a remedy to be used as the last resort in female periodic irregularities, which he promises will give immediate relief. When prosecuted, the druggist confessed that his remedy consisted of the tinctures of valerian and pepper.

Another nostrum sold is called salabar tea. This consists, essentially, of 35 parts each of herba marrubi and herba agrimoniæ, and 20 parts each of rhizoma rhei and radix ononidis. Recommended for gallstones.—*Pharmaz. Zentralhalle.*

THE KEEPING QUALITIES OF SCOPOLAMINE

Opinion on this subject differs widely. Solutions of scopolamine were observed for 250 days and no alterations noticed, either physical or chemical. From this it is presumed that its physiological effects also remained unaltered; and this is confirmed by Coletta's elaborate examinations.—*Therap. Monatsh.*, 1912, p. 663.

DETOXICATED ADRENAL PREPARATIONS

The Chemische Fabrik auf Aktien (vorm. E. Schering) prepares the adrenal glands with the expressed juices of the pancreas, the spleen or liver, adding peptone or similar preparation. In this way the secretion of sugar and the increase of blood pressure are obviated, and there remains the only *sui generis* effect upon the heart, resembling that of digitalis.—*Pharmaz. Zentralh.*, 1912, p. 1342.

MISCELLANEOUS ARTICLES

The Proposed Antinarcotic Law: A Matter of Exceeding Importance to the Medical Profession

IT IS hardly necessary to remind the readers of CLINICAL MEDICINE of the fight which has been carried on in these pages against the succession of bills introduced in Congress during the last two or three years, which, while presumably intended to limit traffic in habit-forming drugs, were in fact so drafted as to work a great hardship upon the physicians of America, and especially upon those who dispense their own remedies. We refer, of course, to the Mann Bill, the Cullom Bill, the Foster Bill, and, lastly, to the Harrison Bill introduced in the House of Representatives last July.

The danger of legislation of this class has been pointed out so many times that it is hardly necessary to go over it again. And, yet, the object of these bills unquestionably was a good one. In certain sections of our country the consumption of narcotic habit-forming drugs, particularly of morphine, cocaine, and heroin, is growing at an alarming rate, and there are depraved, conscienceless individuals who are only too willing to profit by this traffic, and who have fostered these habits in the "red-light" districts of our great cities, among the negroes of the South, and among the ignorant, weak and vicious generally. There even are persons who sell these drugs, first in the form of candies, and the like, to school children in order to make them drug-fiends and customers. Nothing too strong can be said about men and women who are guilty of participating in this most hellish traffic. Assuredly, there are no persons in the country who should be more glad to see the improper use of these drugs brought to an end than members of the medical profession.

The Harrison Bill, to which we have just referred, was defective in many respects, and it was found objectionable to practically all branches of the drug trade, as well as to the medical profession.

However, this bill met with a certain amount of approval on the part of one branch of the trade, the wholesale druggists. At the last meeting of the National Wholesale Druggists Association, held in Milwaukee, in October, Dr. Hamilton Wright, International Opium Commissioner, the real author of the bill, was present by invitation, and he created such a favorable impression that a committee was appointed to aid him in the preparation of certain minor amendments which, if incorporated, it was thought would make the bill acceptable to the jobbing interests. This committee met in due time and suggested certain changes, which were accepted by Dr. Wright, said changes being outlined briefly in an excellent editorial appearing in *The Oil, Paint and Drug Reporter* for December 16 last. With this support, the prospects were that most likely this bill would speedily become a law, especially since it had the powerful support of the administration.

In view of this emergency, a call was issued by Professor James H. Beal, secretary of the American Pharmaceutical Association, for a conference of the drug-trade interests to be held in Washington, on January 15, upon the general topic of "legislation." It was announced that the special subject for discussion would be the Harrison antinarcotic bill.

The following bodies were invited to send and did send three delegates each to the conference: The National Association of Manufacturers of Medicinal Products, The American Association of Pharmaceutical Chemists, The National Wholesale Druggists Association, The American Pharmaceutical Association, and the National Association of Retail Druggists. Representatives of the American Medical Association and of the Veterinarians were also invited to, and did, participate in the discussion of the bill. The writer was present as a delegate.

It early developed that there were irreconcilable differences between Dr. Wright, International Opium Commissioner, representing the administration, and the delegates to the conference. It became clear that Dr. Wright was absolutely unfamiliar with trade and professional conditions and that, while he was possessed by a great ideal, he was also obsessed with the idea that this greatly needed reform could only be brought about in exactly the way which fitted in with his preconceived plans. Unfortunately, he resented criticism and was overbearing and uncompromising in his attitude toward those present.

At a hearing before the subcommittee of the Ways and Means Committee which had the bill in charge, and presided over by the Honorable Francis Burton Harrison, who had introduced the bill, strong opposition to it was developed, and its weaknesses, inconsistencies and burdensome character were brought out in such a striking way that no one (not even Dr. Wright himself) could fail to see its defects.

Lack of space does not permit us to point out here all of these defects, but it is of special interest to the medical profession that this bill, as presented by Dr. Wright, levied a tax of at least $5.00 per annum upon every physician, veterinarian, and retail druggist. This meant an annual tax upon the medical profession of fully $700,000! It was so curiously worded that, according to a strict interpretation of the law, every veterinarian, every hospital, and many dispensing doctors would become jobbers and liable to an annual license-tax of $100! Furthermore, every physician would be required, under the terms of this bill, to keep a record of practically every grain, or even fraction of a grain, of opium, and its derivatives, and of coca and its alkaloid, cocaine, which he might use in customary dosage in his practice. Even a single hypodermic injection of morphine or the administration of a moderate dose of codeine would become a matter for official record.

The slightest infraction of this law, as projected, subjected the dispenser to possible fine and imprisonment. Thus, the terrific burden that would be placed upon every practicing physician can readily be imagined. How disastrous it would be to the dispensing doctor in its ultimate consequences needs no argument. Naturally, we fought this phase of the bill to a finish, seeking conditions which would give the doctor a "square deal." These conditions were later secured, in part, at least.

In the effort to secure a bill which would accomplish the thing desired with a minimum of burden upon the medical profession and the drug trade, it was finally decided by the conferees to take up the Harrison Bill in detail, section by section, suggesting amendments that would make it acceptable. As a result, a bill was drafted which, while reducing the burden very decidedly, nevertheless promises, if it becomes a law, to be much more effective than the original Harrison Bill. In its preparation the delegates were greatly assisted by Dr. M. I. Wilbert, of the Hygienic Laboratory, representing the American Medical Association.

This draft was again submitted to Dr. Wright, and, not meeting with his approval, a subcommittee was appointed to confer directly with Representative Harrison, offering it as a substitute for the original bill. Mr. Harrison found this substitute bill satisfactory and promised to introduce it as submitted, providing no radical changes seemed necessary after a closer examination. This was arranged late on Friday, January 17. As to its later history we are not yet advised.

Whether the bill will be introduced exactly as prepared, and, if so, whether it will actually become a law, of course none of us can predict. But, since it meets with the approval of the medical profession and drug trade, as represented at the conference, and, since it gives promise of curtailing this iniquitous traffic more than anything heretofore suggested, it deserves careful study and should not be hastily rejected, in view of the enormity of the evil which it is designed to stamp out.

The following points regarding this bill are worthy of special notice:

First. It is what is called a revenue measure, in other words it exercises the taxing power of the government, not to secure revenue, but in order to permit of the exercise of a closer supervision, thereby enabling the federal authorities to control the traffic in narcotic drugs between all licensed persons, intrastate as well as interstate. Since all persons who handle these substances, except as actual users, must be licensed, it is expected that it will be possible to trace all the opium and coca imported or produced in this country practically to the ultimate consumer.

Second. Importers, manufacturers, jobbers, and retailers will all be required to take out licenses. The physician or veterinarian who uses any of these drugs or their derivatives in his practice will be classed as a retailer and must secure a license.

This is a hardship, one that is much to be regretted, but which seems to be necessary to control the traffic. But all doctors will be treated alike, and there seems to be no unfair discrimination against the dispensing physician.

Third. The license fee of the retailer (also of the doctor) is fixed at $1.00 per annum, and this license will be obtainable only from the collector of internal revenue of the district in which the individual resides or transacts his business. Producers, importers, manufacturers, and wholesalers will be required to pay an annual fee of $25.00.

Fourth. Opium and coca leaves, imported or produced in this country, hereafter will be subject to an internal-revenue tax. The payment of this tax must be shown by the affixing of the proper internal-revenue stamps.

Fifth. Persons licensed under this act who may order from other dealers (manufacturers from importers, retailers from manufacturers or wholesalers or from other retailers, etc.) any opium or coca or their derivatives, combinations or preparations will be required to use a duplicate order-blank furnished by the Commissioner of the Internal Revenue. These blanks will be numbered serially and will be supplied only to persons licensed under the act. No order can be filled by any jobber, manufacturer or importer unless it is accompanied by one of these blanks. The person ordering will be expected to retain the duplicate blank, or stub, as his voucher, while the stamped order must also be preserved by the firm or persons supplying these goods, for inspection by federal officers. By the use of these blanks it is thought it will be possible to trace the disposition of all opium and coca and their alkaloids and derivatives.

Sixth. The provisions of this act do not apply to the manufacture, compounding, sale, distribution, giving away or dispensing of mixtures containing small quantities of opium and its derivatives. For instance, remedies or preparations which do not contain more than 2 grains of opium, 1-4 grain of morphine 1-3 grain of heroin or 1 grain of codeine to the ounce (either solid, semisolid or liquid) are exempt from the operations of this law. Liniments, plasters, ointments, and other preparations designed for external use only are also exempt.

The foregoing is a brief outline of the most salient features of the bill as it affects the medical profession. We shall keep our readers fully advised of its progress, and if at any time a situation arises which seems to demand the action of the profession we shall bring it to their attention at once, and in a way that will command a hearing. There have been so many efforts to "put something over" on the doctor that we have found it wise to look every gift-horse in the mouth.

Meanwhile we advise every physician to watch this legislation closely. Some of us have been working mighty hard in your interest. Be prepared to get your coat off if the necessity arises.

CHROMIUM SULPHATE AND TOBACCO. TURPENTINE IN ABSCESSES

I have noticed that in giving chromium sulphate to tobacco users all have claimed that the desire for the weed was leaving them, and some of these said they had about concluded to "cut it out." I have wondered if this observation had been made by others. In the few cases in which I have been administering chromium sulphate, every person has informed me that it was removing the appetite for tobacco.

I have been using turpentine to wash out non-inflammatory abscesses and those following sepsis with much better results than any agent I have ever tried heretofore. This method is a little painful and the turpentine should have a free outlet, but the results are prompt, i. e., cessation of the discharge and rapid healing.

H. J. NEELEY.

Butler, Pa.

[Have other readers of CLINICAL MEDICINE observed a similar action of chromium sulphate as regards the tobacco habit? Let us hear from everybody. If this is true (and we all hope it is) it promises to be a "big" thing. The turpentine suggestion is interesting indeed.—ED.]

IMPORTANCE OF COOPERATION*

Several years ago, in getting the views of different men as to the best way to practise medicine successfully, from a financial point of view, the editor of a western medical publication advocated that physicians locate in the country. But all country practice is not profitable. Another editor, in an eastern city, declared that in time we should all be specialists, and so he urged all physicians to take up and practice some specialty. But his view does not suit everybody.

*Read before the Medical Society of the County of Chemung (N. Y.), June 20, 1911.

If a business man saw his business going to a competitor, he would study the situation, find the reason, and proceed to remedy the conditions. What are we doing to prevent our business going to the drugless healers and faddists who apply practically one treatment to all diseases and ailments? It is said on good authority that there are in this country 28,300 drugless healers with a following of 17,600,000 people.

What are we doing to prevent the enormous consumption of patent medicines, for which it is said an average of $2000 per physician per year is paid?

Our remedy for this startling condition—for in our everyday work we do not grasp the extent of the matter—is newspaper publicity, as Dr. Frank Hallock, retiring president of the Connecticut Medical Society, advocated recently. He urges that the readers of newspapers should have some source of medical information other than the perverted statements in advertisements. The Colorado state society and other state societies are working along these lines now, I believe.

The term "charity" indeed covers a multitude of sins in the medical profession. I should not complain of true need, that receives our willing service; but I object to unnecessary charity and that socalled charity that allows well-to-do people to take advantage of dispensary practice in the big cities. That the charity abuse in Chicago alone amounts to an average of $2500 a year for every physician in the city, is the astounding claim. On the other hand, I am told by a physician connected with the circulation department of *The Journal of the American Medical Association* that a canvass of the physicians of Chicago showed an average income of scarcely $725 per year. Why should this deplorable condition prevail?

I am willing to do my share of needed charity work (and I do it), but I should very much wish to have some personal choice in the matter. This brings up the subject of the "deadbeat." I have no statistics to show the prevalence of this delectable species, but if you will look over your accounts you will find a nice little income tied up in deadbeat accounts.

This is a condition that no one man, nor yet a few, can cope with successfully. A single individual may reduce his list of "deadbeats" to a minimum, to be sure. But why not all get together to reduce the total number of "deadbeats" to a minimum?

I believe that, if you make a man pay *you*, he will employ *you*, instead of going to your competitor and "knocking" you. It has always seemed heartless to refuse treating worthy dependents of a "deadbeat" just to punish the "beat" himself. I should like very much to punish him in some other way.

Scientific management is discussed on all sides today. If it is not scientific farming, it may be scientific management of office work, or even of shop work. The conviction has long possessed me that physicians are not scientific in managing the business side of their profession—and it has its business side.

The Vedas—the sacred writings of India—show that medicine was early considered a business as well as an art. "The practice of medicine is a science, an art, and a business," some one has aptly said. An old college professor is quoted as saying, "Medicine is a noble profession, but a damn poor business." One writer on this topic a while ago expressed himself as follows:

"Our unit system of doing business is an unmixed evil. It increases our fixed charges, causes rabid competition, and makes enemies among the very people who should be our friends. Our only salvation in medicine is in cooperative work. The physicians in each community must unite and secure laboratory knowledge and facilities and turn guesswork into certainty. If physicians would organize and cooperate with each other, they could increase their efficiency in many things. Every member of a cooperative firm should be a general practitioner with some specialty. All should cooperate with each member of the firm in diagnosis, and do it cheerfully. The firm could maintain one or more laboratories, which would be under the direction of some member of the combination."

Cooperation seems to be the basis of most successful ventures. It is true, all cooperative ventures have not been brilliant successes, but the grocers and coal-dealers in our city appear to have very effective cooperative associations, and some of the druggists had a cooperative buying-club that seemed to work well, at one time.

It is said that all the hospitals of Toronto, Canada, are going to purchase all their supplies through one agent. This is a plan advocated by Dr. Goldwater, superintendent of Mt. Sinai Hospital, of New York. As a result of the formation of a hospital association in a western town, a fine hospital was built. The People's Hospital, of Sayre, Pennsylvania, is a cooperative affair, as you all know.

Several physicians in a western town formed a cooperative firm, each practising his favorite

branch of medicine, as well as general medicine. In connection with their offices, they had a lounging room for themselves and visiting physicians. They provided for a vacation for each member of the firm once a year, and if one of them wished to take postgraduate work his practice was looked after by the other members of the firm.

In China, it is said, physicians combine. Especially in Hong Kong, practically all English-speaking physicians combine so that the firm consists of an internist, a surgeon, and some other specialist.

Several physicians in Western Pennsylvania formed the Red Bank Physicians' Protective Association, for the better handling of the conditions confronting them, the worst of these being a great lack of uniformity in fees, and the "deadbeat." The association has regulated the fees satisfactorily and the members have been much gratified to find "deadbeats" of long standing paying their accounts.

In some cities physicians have a professional building, different men occupying the same offices at different hours. In some cases they have separate offices, but maintain a common waiting-room presided over by a girl who operates the telephone exchange in the waiting-room. I am told these plans are in operation in Chicago.

I mention these instances to show that cooperation is successful in many instances, and therefore is practical.

A combination that would provide for at least one man in the office at all times to attend emergency cases would be filling a want, as I have been told many times by patients that every physician was out when they were the most needed for some emergency.

While conditions in our town are very satisfactory as compared with elsewhere, I think these could be improved upon somewhat. For instance, the present fee-table is quite adequate if rightly followed, using the present fees as a minimum. It seems to me that double fees should be allowed for night-calls, in the office as well as to the patient's home. In some places, with the fees the same as ours, two dollars is charged for making a house-visit during office hours.

I think a fee should be charged for filling out insurance papers for disability and death. In a place I read of, the physicians devised a uniform blank, had them printed at their own expense, and furnished them properly filled out at a charge of fifty cents per certificate.

A charge should be made for dispensing medicines, especially renewals.

Only by cooperating, can we destroy lodge, contract and cheap insurance-examining practices, for I have been told by physicians that they would drop their contracts in a minute if they could feel sure that a colleague would not snap them up. I refused a fine lodge practice only to have it taken in a short time by one of my friends in the profession.

By cooperating, we could better ourselves by increasing our individual incomes, and we would better the public by having more time and money to give to the public questions we are expected to solve.

Of course many physicians have become independent or are originally independent financially and can do good public work, but the rank and file are not able to and the public loses the services of good, capable men. If we are to have a contented, prosperous profession, it must be by cooperaton on the part of all in the profession.

C. F. ABBOTT.

Elmira, N. Y.

HEART FAILURE. TROUBLESOME COUGHS

I have been a subscriber to CLINICAL MEDICINE almost since its birth, but I am afraid I have been content to suck honey, and have not given my share of helpfulness. It has occurred to me that if the subscribers to our journal would think over the things that have proved successful after long experience, the things that they pin their faith to in the critical emergencies that from time to time confront them, and from these cull out one or two that are preeminent above the others in usefulness, and send them in, we should all get some very valuable help.

With this idea in mind I am going to tell of a treatment that for years has given me the most dependable kind of help in desperate cases of heart failure. The condition of the patient when we arrive is something like this: Semi- or totally unconscious. Skin cold, and wet with perspiration. Heart action irregular and very feeble. Lungs full of mucus, and a frothy mucus, usually bloody, exuding from the mouth. Fingernails and lips blue.

A patient presenting these symptoms is very near dissolution, and is past the stage when he can respond to ordinary stimulation. Formerly I lost these cases, but within recent years I have had perhaps ten and have not lost one.

I give hypodermatically 1-30 grain strychnine sulphate, 1-50 grain glonoin; and last and *the important* thing, a whole hyoscine-morphine-cactin tablet. The usual procedures as to rubbing, heat, and the like, are then instituted.

Result: Inside of five minutes the patient is in a deep slumber. Respiration slows down, The heart grows steadily stronger. The mucus-laden lungs begin to clear up; and within half an hour the patient is breathing easily and is out of danger. I have seen the most desperate type of this form of heart failure respond under this treatment, and after twenty-three years of active practice I pin my faith to it.

Sometimes the little things bother us in medicine so I am going to give you as another contribution, the formula that I use to stop the dry, harrassing cough (of children and adults alike) that simply defies the cough medicines unless they are loaded with narcotics. It should be especially useful in the persistent coughs that follow pertussis, although I have never had an opportunity to try it in that disorder.

Phenol.....dr. 1-2
Oil eucalyptus.....drs. 2
Creosote.....drs. 2

M. Sig. Put half a teaspoonful in an old dish with a pint of water, and boil. Let the patient inhale the steam.

Usually a cough that would otherwise keep steadily up for hours will stop instantly, thus treated. Upon recurrence a repetition of the procedure will give the needed relief.

These two treatments are as certain in my hands to accomplish the wished-for results as anything I know of in medicine.

FRANCIS E. PARK.

Stoneham, Mass.

SPARTEINE SULPHATE IN LARGE DOSES

As a remedy to sustain the heart's action in debilitated conditions I find sparteine sulphate in 2-grain doses every two to four hours a reliable agent.

The action of sparteine as a heart sustainer surprised me in one case. An old man up in the eighties got into a generally debilitated condition. His pulse would skip beats, quiver at times for a long time, and occasionally beat with great force. According to his general condition, age, and heart's action, I expected him to die at any time, but with the aid of sparteine sulphate in 2-grain doses every two to four hours, his cardiac action gradually improved and in about four or five days was strong and regular. He gradually became insane, was sent to the asylum and died a few months later. I think that sparteine prolonged his life when under my care.

In another case, a lady over 50 years of age, sparteine acted well. She got 3 grains every two hours one day, which had a very beneficial effect both on heart and kidneys. She had crazy spells, talked out of her head occasionally when under treatment, but was never known to do so before. Of course the mental influence in these two cases made me consider whether the sparteine in those large-size doses had anything to do in producing them or not. I do not think it did, but shall watch for such in future.

I believe Dr. Pettey is correct in the doses of sparteine sulphate. I noticed that Merck labels his bottles of sparteine sulphate "poison." I should like to know how much it would take to produce death in a healthy adult, how it produces death, and the antidote.

J. A. BURNETT.

Hartshorne, Okla.

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[According to Kobert (*Lehrb. d. Pharmakologie*, p. 343, 1908) sparteine increases the working capacity of the heart. It does so by producing a moderate slowing of its beats. On the other hand, digitalis is classed by Kobert among those remedies which increase the tonicity of the heart and of the vessels.

Sollmann ("Textbook of Pharmacology," 1906) says that by a stimulation of the vagus mechanism and direct depression of the muscle, sparteine slows and weakens the cardiac contractions. He insists that sparteine cannot therefore be classed with digitalis, which, although slowing the heart, strengthens the contractions. According to Sollmann, the blood pressure is usually lower when sparteine is taken by the mouth. He differs from Kobert in that he does not admit that the drug increases the working capacity of the heart. It is therefore of no value in heart disease, or at most should be used in the same class of cases as aconite. Doses of 1-6 grain are specific in some cases of asthma. The maximum dose of sparteine sulphate, according to Sollmann, is 1-2 grain.

Cushny has observed that after the administration of sparteine the rhythm of the heart is slowed and the contractions weakened. After injection into a vein, a very slight increase in arterial tension is produced,

which is absent if the remedy is taken by the mouth, and even the slight rise in pressure induced by intravenous injection is of short duration only. Cushny says that the claims ascribing to this drug an action similar to that of digitalis are erroneous, and that both experimental and clinical observation show them to be unfounded. The drug is comparatively of slight toxicity and may be given in doses of 2 grains with perfect safety. The range of dose, according to Cushny, is from 1-16 to 12 grains in the course of twenty-four hours.

The contradictory character of these reports is well borne out and illustrated in a review of sparteine appearing in the latest (25th) volume of Merck's "Annual Report," on page 110 and following. A variety of authors are cited, some of whom have observed a digitalis-like action, or at least an action similar to that of digitalis, while others side with Cushny and deny such action.

Emphasis is placed here upon the comparatively slight toxicity of the drug. In fact, Griffe took 6 grains of sparteine sulphate without evil consequences apart from a sensation of dulness in the head. Clark reported to *The American Journal of Medical Sciences*, in 1887, that following the use of single doses of 1-6 to 1-4 grain an action was observed after thirty to forty minutes and lasting for four to five hours, and that varied doses, amounting to as much as 10 grains, occasioned no toxic symptoms. Most authors mentioned in Merck's "Report" recommend the drug in those cases in which digitalis either fails or must be omitted on account of its cumulative action.

Prior (see the *Berl. Klin. Woch.*, 887) says that in the latter case doses of 1 1-2 grains should be used, and that larger doses should be avoided, as they are liable to cause a return of irregularity of the cardiac rhythm. Lewaschew (*Zeitschr. f. klin. Med.*, 1889) considers 1 1-2 to 5 grains of sparteine sulphate, given in three to four separate doses, the most reliable daily dose.

Merck's "Report" concludes that on account of the relatively slight toxicity of sparteine it is hardly possible to fix a maximum dose. In the literature 1-2 grain to 1 1-2 grains are given as the maximum single dose; 1 1-2 grains and 7 1-2 grains as the maximum daily dose. No cases of death from sparteine have been reported.

Finally, the best therapeutic review of this drug yet published and one based upon careful and exceedingly extensive clinical study, is that of Dr. Pettey now appearing in CLINICAL MEDICINE. We urge every one to read it—ED.]

ABSURDITY OF PHENOL POISONING

I am painfully tired of reading, in the columns of medical journals, about poisoning and gangrenous disasters resulting from the application of phenol aqueous solutions or glycerin mixtures to quick human anatomy; and I almost revolt at any editorial request for new facts on the uses and abuses of the magical substance I have been stereotyping for years; and that the father of its limitless employment, Dr. Ben H. Brodnax, told the profession for an age; and that Dr. J. D. Albright proclaimed between the pages of popular books and editorially in his medical journal for a long time.

Aqueous and glycerin compounds of phenol in any strength are unscientific, and their employment should be considered criminal practice; while the phenol may be used with reckless impunity, in any strength in pure olive or sterilized sperm oil or absolutely pure, liquefied by heat, in the eye, nose, ear, throat, or as a gargle. These uses in oil, and from pure liquid down to any desired strength, hypodermically in forming boils or hemorrhoids are harmless, care being taken not to inject the pure phenol where there is watery or pus formation to reduce the strength to an absorbable degree.

I use almost exclusively phenol crystals, chloral hydrate and camphor, in equal parts. (the camphor and chloral triturated to a homeogeneous liquid and the phenol added), for cutaneous diseases, ulcers or other sores, new or old; and modified with from an equal part to a part and a half of oil to the compound, for catarrh, gonorrhea, and deep sloughing gunshot or other wounds.

Most wounds I have to treat are horrible *machete* gashes, and fearfully frequent in these bloody times. This even among the peons when drunk, one yelling "Viva Madero," another "Viva Orozco," and at it they go, both dying, sometimes, and always one or both seriously wounded. When still bleeding, I swab out the gashes with cotton and fill them with pure liquefied phenol, washing off any chance overflow with alcohol. Then I stitch or bandage the edges together, tapping well with cotton, the hemorrhage always stopping at once—rarely continuing many minutes. Many times, for one unavoidable reason or another, such wounds are never dressed and heal perfectly without one drop of suppuration—an almost in-

variable occurrence when dressed daily. If not fresh, I use the triple compound after washing out the loose impurities, which speedily destroys damaged particles clinging to the walls of the lesions, instantly developing an impervious antiseptic state, closely approximating that of the pure liquefied phenol applied while the wounds are bleeding.

It is an irrevocable law of the phenol technic that pure liquefied phenol should not be introduced into watery deposits. But any strength, applied regardless of such deposits, when combined with oil, never penetrates the circulation in the slightest degree of absorption, notwithstanding that the quantity may exceed that of a five-percent aqueous solution sufficient to result fatally.

I use externally the triple compound from toe-itch to ringworm on the head, on every class of eruptions, ulcers, sores, the bites of serpents and stings of insects; and, properly modified with oil, for catarrh and sore or inflamed eyes.

The discretionary intelligence of the physician will admonish him when the employment of phenol and its compounds are no longer indicated. Very many cases are met that require but one application of full strength. I use a 5-percent oil application as a disinfecting composition in the treatment of indolent ulcers, which serves me a far better turn than any elegant specialty known to the medical profession. No infectious germ can live in, much less enter, such substance, which retains its virtue perfect long after an aqueous application of the same strength has vanished and dried up.

As singular as it may seem to some and incredible to many, phenol pure or in the triple compound destroys nothing of the clean, quick anatomy, nor penetrates it in the slightest degree. The pure crystals of a high grade may be scooped with perfectly dry hands all day without causing the least burn or other inconvenience; and the blood-serum coagulates with it when liquefied, arresting its action perfectly beyond the mutilated elements of the lesion, thus assuring perfect immunity against danger of infection or tissue damage in any degree, as the protection thus formed is impervious.

Some years since the municipal secretary was shot on horseback by a man on foot from the rear, a 38-calibre bullet striking a fraction to the left of the spinal center, swerving from its direct upward course on to the third lumbar vertebra, thence obliquing slightly downward and passing over the ossa innominata, whence, with a curving swoop, it turned down, lodging in the thick pulp of the thigh, close behind the femur, some thirteen inches below the articulation. This was late in the afternoon. Dr. Maldenado, the family physician, was sent for at once, but as he was twenty-five miles away I was called merely to staunch the blood and guard against collapse.

When the doctor arrived early next morning he found the case so critical that he insisted that I should remain with him. We followed the tortuous course of the ball with a flexible probe, and decided that it would be much more perilous to extract it than to let it rest. The doctor came equipped with up-to-date standard requisites for treating the wound, so that there was no immediate necessity for consultations on that score.

The distressing swath cut through such a broad field of nervous tissue speedily resulted in alarmful suppuration. We dressed twice daily, discussing the prognosis in English over the prostrate man. Ligaments, muscles, nerves and their accessories were decaying at both severed ends, pus running from the mouth of the wound in a vigorous stream when unbandaged to dress, the probe entering their vacuums two or more inches above and below the mouth in close juxtaposition with the bones, while the yet healthy tissue over the cavity was almost transparently thin, the suppuration ever crescent.

The doctor indicated to me that our patient was not more than three days from dissolution. I asked him what better he could expect with the slops he was using. Then for the first time he asked me what else I should have done.

I told him he would never consent to my treatment in such case, but assume the same as the French critics of Brodnax's propaganda did, that it would be as promptly fatal as electrocution. When he heard my dictum he thought the Frenchmen were right, but decided that even electrocution would be more merciful than to permit the creeping death that seemed inevitable.

We put a soft-rubber tube in till it reached the ball and injected the modified phenol compound with an ounce-syringe. The first shot arrested the decomposition in a degree that the suppuration was little more than half the flow at the previous dressing; and, in twelve hours more, the prognosis gave a cheerful promise of recovery. The subsequent improvement was so favorable that Dr. Maldenado left three days later, the convalescence passing uneventfully. Maldenado christened the compound "Unto de

Morales," the name of the patient whose life it saved.

I have elaborately introduced this evidence, because the wound itself was extraordinary in its lengthy meanderings and its cure uncontrovertable testimony of phenol magic, and of its safety in the profound depths of the human anatomy, a full dram of phenol crystals liquefied, with equal parts of chloral and camphor in 5-drams of oil entering at each injection, and no toxic symptom supervening. Here is repeated in milder yet effective operation the active energy of pure phenol on bleeding wounds, the former destroying the autoinfection ravaging the wound, the latter rendering its entrance impossible.

The practical medical mind imbued with a spike of scientific turn will readily comprehend that such protection against any class of infection, and positively excluding even the air from the renovating process of granulation, clearly explains the absence of inflammation and suppuration as well as the rapid and almost painless healing.

Possibly members of the noble and ennobling medical fraternity have the right under an antiquated law and a barbarous rule of practice to torture their patients and endanger their lives by the employment of phenol aqueous solutions; yet I cannot imagine how they can have the heart to persist in such inhuman stupidity under the brilliant sheen of progressive scientific light.

ROBERT GRAY.

Pichucalco, Chiapas, Mexico.

CHRONIC BRONCHITIS AND GONOCOCCI

Chronic bronchitis sometimes is curable, but often it lingers and lasts indefinitely through the years, until finally emphysema, bronchiectasis, asthma or cardiac hypertrophy render the condition incurable.

I have had occasion to follow a certain case, with some intermissions, for a period of fourteen years. At first it seemed to be just a slight bronchial catarrh, without any cough—the only symptom the patient would notice was a slight raising of gelatinous mucus just after a hearty meal. He was then a man of about twenty-six years. Before that time, however, he had had several attacks of acute bronchitis. But when he was around 26, this plug of mucus would invariably be down in the bronchial bifurcation only after each meal, and a quick, short exhalation would bring it up.

At this stage he did not consult any physician; only two or three years later, when, during autumn and most of the winter, the expectoration would become profuse and the cough distressing. Now, here follows a list of drugs and medicines that this man, from one time to another during the years, was advised to take and actually did take: Opium and nearly all of its derivatives, ammonium chloride, syrups of all kinds, creosote, stramonium, turpentine, aconite, belladonna, iodides, codliver oil, calcium sulphide, sanguinaria, strychnine, chloroform, squill, quinine, benzoic acid, iodoform, ammonium carbolate, glycerin, lobelia, bryonia, bromides, ipecac, chloral, hypophosphites, olive oil, senega, digitalis, carbolic acid, tartar emetic, thuja, hydrastis, hyoscyamus, iodalbin. In addition to these, several homeopathic and eclectic remedies, the names of which I now have forgotten, were also pressed into service at various times.

These remedies were used sometimes singly, or two and three in combination, and tried for a month or so at a time, until, not doing any good, the medicament was given up and a new one begun. Outside of this, the patient was given instructions in hygienics, fresh air, deep breathing, exercise, bathing, slapping the chest with cold cloths, and what not.

The patient now became thoroughly disgusted with medicines and their supposed virtues, and for a long time I lost track of him. He drifted over to Mother Eddy and other mental healers, invoking all the magnetic, hypnotic, suggestive, and divine powers for aid, but the bronchorrhea remained the same.

It was then, after about two years of faith- and other healing, that he consulted me again, thinking he must have tuberculosis. This I could assure him was not the case, but to satisfy him I examined his sputum at different times, finding no tubercle bacilli; besides, he was in good general health, appetite, sleep and bowels were in first-class order, and other symptoms associated with consumption were absent. If it had been, the man would have been dead a long time before that.

The only thing left to do, that I could think of, was change of climate. Accordingly he was sent to a more appropriate latitude (this was about two years ago), but even here the bronchitis was no better and no worse; so he concluded to return home, where he had his friends and relatives. I must here state that the patient, now about forty years old, was never greatly inconvenienced by his malady.

Examination of the chest was negative; temperature and pulse were normal, except during acute exacerbations, which would occur several times a year, when cough was harrassing and expectoration profuse, bringing up veritable "oysters" in point of size and looks; but as yet no signs of emphysema or bronchiectasis; urine tests were negative. There was no gouty, rheumatic or syphilitic history.

By this time I despaired of being able to affect this man's condition with any remedial measures whatsoever, when suddenly, one day, the thought came to me that I had not tried the balsamic drugs, which, although recommended by the textbooks, generally are thought of last. And, then, was it not possible that this case, and a good many others, actually was of gonorrheic etiology?

Then I began to ask myself: Is it not possible that the gonococcus could follow the lymphatics and arrive in the bronchial mucosa? The bronchi to the finest subdivisions are lined with ciliated epithelia, which in many parts are really transitional or stratified. We find the same epithelium lining the urinary bladder, ureters, and pelvis of the kidneys. It is plausible that, through repeated attacks of acute bronchitis, the epithelium will in places afford a favorable nidus for the gonococcus; the entrance could be by way of the lymph or blood streams, but also through nasal and laryngeal route, as we know that mere contact is enough for the gonococci to replant themselves; we need not have any abrasion or open mucous patch.

After these reflections I put the patient upon balsam of copaiba—nasty, but time-honored gonococcus foe. Since then he has been markedly benefited, more so than by the legion expectorants heretofore used. In 15-grain doses, four times daily, the action on the bowels became pronounced, so that, with a dozen evacuations a day, I stopped the drug after three days and put him on balsam of Peru, when the bowels again became normal.

Whether this patient will eventually recover under this treatment, I do not know, but that he is greatly improved there is no doubt about. The next thing in order would be to demonstrate the gonococci in the sputum.

H. G. HENRIKSEN.

New Market, Minn.

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[The balsams are excellent remedies for chronic bronchitis, *especially* when the expectoration is profuse—bronchorrheic in character. But that fact does not presuppose the gonococcus as a necessary cause. Indeed, copaiba is not in any sense *specific* for gonorrhea. It does not kill the gonococcus—it simply provides a less favorable environment for its development. We hope Dr. Henriksen will examine the sputum microscopically with great care, but we predict that he will find no gonococci in it.—ED.]

RELATIONS SUBSISTING BETWEEN TEETH AND EYES

In *The Annals of Ophthalmology* for October, 1912, W. E. Bruner has a very interesting article on the subject named in the heading. The association of certain eye conditions with changes in the teeth is not a new subject and its recognition long ago is suggested in the term "eye-teeth." Dr. Bruner's paper concerns itself more particularly with the production of ocular disturbances or diseases from abnormal conditions of the teeth, and these he divides into two classes, functional and organic.

The functional disturbances may be produced by abscesses or disease about the roots of the teeth or by an impacted tooth, and such reflex effects are found more frequently when the teeth of the upper jaw are the ones at fault. The effect upon the eye on the affected side may consist in disturbances of the pupil or the motility of the iris, in restriction of the range or complete paralysis of accommodation, spasm of the orbicularis, disturbance of the muscle balance, asthenopia or amblyopia (with absence of ophthalmoscopic findings), all of which are entirely relieved upon removal of the cause of irritation.

The author cites Coopman's interesting case of blepharospasm, from physiologic eruption of a tooth, occurring in a healthy child of three who made no complaint about the teeth. After five days of marked blepharospasm, examination disclosed a slight swelling back of the second temporary molar. Incision over the permanent molar caused the spasm to disappear.

The author himself has seen cases of strabismus, asthenopia, and other symptoms which occurred either during the eruption of the teeth and disappeared when the tooth was through the gums, or which occurred while children had their teeth straightened and disappeared when the braces and all pressure had been removed.

Blindness following the extraction of a tooth has been reported. Organic, or structural, changes in or about the eye, resulting from the teeth, have been observed in many varied forms; and inflammation of almost

every structure of the eye, depending upon or at least attributable to dental trouble, has been reported. The author mentions a case of abscess of the orbit which stood in relation to an abscess about the root of a tooth. Ulcers of the cornea of various types have been attributed to the teeth by various writers. The possibility that an intractable keratitis may be due to reflex irritation should also not be lost sight of.

Pyorrhea alveolaris has not infrequently been found to be a cause of ocular disturbance. An important point in reference to this and to other septic conditions about the mouth is that, when such is found in a patient upon whom an operation upon the eyeball is contemplated, it is most important to correct this septic condition before proceeding to any operation. Knapp reports a case of blindness from periostitis originating from caries of the teeth extending to the floor of the orbit, where it caused some thickening and involved the optic nerve within the canal.

The remarkable fact upon which the author lays particular stress is, that not infrequently the patient is wholly unconscious of anything wrong with his teeth, and he will state that the latter are examined regularly by supposedly competent dentists. The author has grown to be suspicious of a mouth showing numerous gold crowns and fillings, and he places great weight upon an x-ray examination, which he insists upon when he does not feel certain of the work previously done. He has thus succeeded in several instances in finding abscesses at the roots of teeth, or improperly filled roots, where nothing wrong was suspected by the patient, with the result of securing relief of the ocular symptoms by treatment of the pathologic dental condition.

ACTIVE ANTIDIPHTHERITIC IMMUNIZATION OF CHILDREN

The problem of active immunization for the purpose of protecting especially children against acute and chronic infectious diseases is an important problem of prophylaxis and public hygiene. The vaccination against smallpox has proved the feasibility of the proceeding and the efficiency of the method in spite of all that has been said against it, even if due credit is given to improved methods and habits of sanitation and hygiene which in themselves contribute to reduce the chances of the widespread distribution of infectious diseases. In recent years we have heard of attempts of vaccinating children and adults against tuberculosis, a problem, we hope, that will soon be solved.

In the case of children's diseases, the matter is rather more difficult, and at present isolation is still the only known method at command for protecting children from infection, although in the case of diphtheria we frequently make use of a prophylactic immunization by the injection of small doses of antidiphtheritic serum.

Unfortunately, an immunity produced in this manner, that is, a passive immunity, does not last very long, in contrast to the results of active immunization, which is claimed often to be efficient through life.

Such an active immunization is developed when the organism forms its own protective substances, not as in passive immunization, in which the substances developed in the animal organisms are injected into the child (antidiphtheritic serum) or by the production of a slight bacterial disease by injecting a small amount of attenuated or killed microorganisms. This bacterial disease can be induced in an attenuated form, so that it is harmless for the organism, without materially attenuating the immunization, and it is well known, as already mentioned, in the vaccination against smallpox.

Diphtheria is a serious and dangerous disease, principally because the diphtheria bacilli, which are localized in the mucous membrane, flood the organism with their toxic products of metabolism, the socalled toxins. The patient recovers if his body has the strength to detoxicate these substances, i. e., when it is capable of forming sufficient protective substance, or antitoxin. It is a matter of course that the disease can not develop at all if the antitoxins are already present during the invasion of the infectious organism; that is, if, by a previous active immunization, the organism has been put into a condition successfully to resist the invasion of the bacteria.

S. K. Dzerjgowsky claims that such a protected condition may be produced by causing a slight diphtherial disease without diphtheria bacilli. He introduces, once a day, cotton tampons saturated with pure diphtheria toxin into the nostrils, leaving them in place for one hour. In the mucous membrane a condition of congestion is produced, and in a considerable number of instances false membranes are formed; on the other hand, the author never observed fever or other disturbances. In his clinical experiments (reported in (*Jahrb. f. Kndheilk.*, Vol. lxxiv, No. 2), Dzerjgowsky demonstrated, after this treat-

ment, notable amounts of diphtheria antitoxin in the blood of his patients.

Blumenau modified this method in so far as he employed the toxin diluted. In this manner the irritation of the mucous membrane is avoided and antitoxin formation in the blood is stimulated satisfactorily. Blumenau believes that his method will be useful for the immunization of school children, of the inmates of asylums, and the like.

HEROIC TREATMENT OF PUERPERAL SEPTICEMIA

On May 19, 1912, I delivered a woman of a fine girl baby. She is twenty years of age and mother of three living children. This time she was in feeble health the last three months of pregnancy, but I did not attend her. She has had a cystic trouble for some years. This last baby came at full term without any trouble, and the placenta was partly expelled into the vagina and was removed without difficulty.

I always bathe my hands thoroughly in hot bichloride solution before delivering the placenta, and generally am careful about seeing that it is intact, but this time there were some pieces left.

On the second day following confinement, I was hurriedly called and found the woman suffering intensely from retention of urine. This was relieved by the use of the catheter. The next day we had to do the same thing. This time I irrigated the bladder with boric-acid solution, and no further trouble was experienced. About the sixth day there was evidenced tenderness in the region of the uterus, some headache, and some foul odor of the lochia. I ordered a mercurial cathartic, also hot douching. On the ninth day she had a hard rigor, rapid rise of temperature (to 103.5° F.), the pulse was rapid and weak, and there was general weakness with fainting on exertion; also tenderness in the region of the uterus, cervix, and vaginal wall. She showed all the signs of profound septicemia.

I began the treatment with calomel to effect, followed by a laxative saline; and calcium sulphide, 1-2 grain, to effect, then less often. Strychnine sulphate, 1-30 grain, every three hours till effect, then less often. Also irrigated the vagina and uterus with hot boric-acid solution, and swabbed out the uterus with alcohol; then packed the uterus and vagina with iodoform gauze.

A doctor of a neighboring town was called in consultation, and we gave her 40 Cc. of antistreptococcic serum, repeated in six hours. In fact, we gave the serum in from 30 Cc. to 80 Cc. doses, until all the severe symptoms disappeared. We gave it every six to fifteen hours. At times we would run out and there would be a delay before we could get any more. Because of this fact we had to use more than we should have used ordinarily. We used 1460 Cc. in all.

I want to say that the serum is the thing to use in these cases. I would not treat any case of septicemia without it if there was any possible chance to obtain it. I noticed that the fever would drop considerably after its use and the patient would rest better. We pushed the serum until we got the rash.

The fever ranged from 100° to 105.5° F.; she had several rigors; came very near having abscess of the liver twice; also in the spleen once, and in the walls of the vagina.

The other remedies given were strychnine sulphate, 1-30 grain, every three hours till effect, then less often. Saline laxative every morning, to move the bowels thoroughly. Enemas of normal saline solution about every eight to ten hours. Aconitine was also given for the fever and to quiet the heart's actions. All these remedies, with the exception of aconitine, were pushed to their effect.

Regular douching was done night and morning with hot bichloride solution, and we packed the uterus and vagina with bichloride, iodoform or borated gauze. At first the vaginal walls were so edematous laterally and anteriorly that one could reach the cervix only with considerable difficulty. But after the free use of pure tincture of iodine to the surface of the vagina, also to the uterine wall, the swelling subsided. At one time I painted the uterine wall with pure phenol and then packed the uterus with iodoform gauze.

Well, with the heroic use of antistreptococcic serum, calcium sulphide, strychnine, aconitine, and the sulphocarbolates (which I forgot to mention earlier), the fountain-syringe, bichloride tablets, lysol, phenol, and iodine used freely with the gauzes; with many things done by loving hands; all followed by the triple arsenates, and the elixir of iron, quinine and strychnine, and nitrohydrochloric acid, the woman is able to be up and about now.

F. S. BABBOTT.

Blair, Okla.

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[We are glad Dr. Babbott brought out so strongly the value of antistreptococcic serum. His medication was excellent.—ED.]

BUT THE GREATEST OF THESE IS CHARITY

The dictionary defines "charity" as "love toward our fellow men; goodwill; a disposition to look kindly or charitably upon the actions or defaults of others; any act of kindness or benevolence." The last one of these clauses defines the word "charity" as we shall amplify its meaning in the following appreciation of an accidental opportunity that culminated in a new style of church organization and which for now several years has done splendid practical charitable work.

About 1900, in a city of much wealth and refinement and many beautiful and valuable religious edifices, there resided a physician whose beautiful Christian helpmate was superintendent of the primary department of one of the largest of that city's churches. One of the customs of the teachers in that Sunday school was to invite their "men folk," on one day in each week, to lunch with the ladies in the "parlors" of the church, "at two bits per"; and after lunch it was customary to mingle in general conversation for a while.

During one of these "mixed seances," so to speak, the physician mentioned overheard some of the ladies bewailing a lack of interest, upon the part of a majority of the other ladies of the church, in the various auxiliaries. Eminently practical as was that physician, though by many who did not understand him believed to be a dreamer, he did not hesitate an instant, when asked for advice, to give it.

"Ladies," he said to them, "my vocation probably shows me more of 'the seamy side of life' than is generally known to the average man. It shows me many very poor but worthy prospective mothers absolutely destitute of the initial wardrobe for the baby. Many of these babies anticipate the natural period of gestation and consequently find the mother unprepared, though possibly she is financially able, in a small way, to care for her progeny correctly; others, however, are taken unprepared, because of absolute poverty, even for the natural birth.

"My vocation also, unfortunately, often brings me into the presence of the inevitable. There, because of some natural law—defied, possibly, through carelessness or ignorance, or both, upon the part of parents or physician, or both—I have more than once found mothers in the habit of laying away 'baby's clothes,' where, upon occasion, they are wont to visit them alone, and alone 'sob out their hearts' in silent grief.

"What do you ladies really want, in the form of a charity that will help both you all and the poor prospective or real mother, better than an organization which shall have for its purpose the accumulating of 'baby wardrobes' for the very poor? How much better would you all feel if, right now, those of you who have been accustomed to keep your own griefs alive by such visits and you who have never suffered thusly—how much better would you all feel if, right now, you decided you would form such an organization and for a nucleus each add your mite by contributing for the sake of the helpless mother those garments which must become more sacred if helpful to others?"

That was all for that time. That practical dreamer then forgot his dream and went his way. Not so, however, those ladies.

One wintry day, several years after that, when sickness in his own household had required removal to the country and propinquity and convenience had made transfer to another church expedient, that same physician, answering a professional call upon the child of one of that same group of ladies, found many of those ladies gathered in the reception hall as he passed through to see his little patient.

Social etiquette admonishing a short chat with that same group, as he passed out from the sick-room, and curiosity prompting the question—possibly a natural one—"Why are you all gathered here today, which of your many church auxiliaries is this one?" there came the prompt, yet pleasantly surprising reply: "Why, *you* ought to know, for *you* suggested it; this is the 'Baby's Wardrobe Society,' and it's been helping the poor mothers ever since that luncheon we all had together that day down at the church."

And that was a fact. And that society is still doing that practical kind of charity today—so far as the writer knows. And it all sprang from many sad experiences in the life of a practical dreamer. And one of his dreams has come true.

Why, may I not ask, can not the physicians, readers of this article, on just one other physician's experience (especially physicians located in the larger cities, where real poverty is so much oftener in evidence), relate this one experience for the sake of their lady friends who are ready, but oftentimes do not know when, where or how, best, to show such a real charity?

Why was the writer himself ignorant of such society? Because his general practice had been abandoned and special work as-

sumed, because of a forced country residence, and because such residence removed him from association with those particular ladies who, though admonished by him at the time, to request the physicians of the city to help them to help others to help themselves, never asked him, as they knew he had given up the kind of practice which would further their cause.

Fraters—tell your wives of *this* form of practical charity. If mothers, *they* will know what to do with the thought.

ANON-Y-MOUS.

——, Texas.

TUBERCULOSIS, MOUNTAIN AIR, AND OZONE

It is now an accepted fact that high mountain altitudes are the best for consumptives and that for the city dweller too poor to escape to bracing Colorado the best place is the out-of-door sleeping-tent and an all-day absorption of the freshest air and most direct sunshine.

It has commonly been considered sufficient to explain this by stating that the purest air is found only in such places. A few daring doctors have suggested that the stimulating effect of ozone is a factor. The evidence in support of that view is strong. Before discussing this evidence, however, let us consider what ozone is.

Oxygen, the active fifth of the air, may be changed to a much more active form, called ozone, when this oxygen is excited by high-tension electric discharge and certain other influences. The smallest particle of oxygen gas, called the molecule, is composed of two atoms—we will call them bricks for convenience. When these pairs of bricks—oxygen molecules—are sufficiently agitated by high-tension electrical stress or ultraviolet light they may rearrange themselves in threes instead of twos. These new molecules of three bricks each are called ozone molecules, which are much more active in attacking filth and bacteria than plain oxygen.

Valuable though it is in nature, ozone does not last long near the surface of the earth. As long as there is filth to attack, ozone is consumed. Heat breaks it up, as does moisture. Obviously cold dry air far from the dust and dirt of cities is most favorable to its preservation. Such conditions are best found in our "Rockies."

A year's observations by the author indicate that in the eastern lowlands and plains the greatest amount of ozone is found when "high" barometric areas are near. In such areas the air is rapidly falling from great heights to the surface and spreading in all directions. This means a quick transfer of upper air to the surface, and shows plainly that there must be a far larger amount of ozone in the upper strata than near the earth.

Considerable evidence indicates that most of this ozone is made by the action of the short ultraviolet waves of sunlight upon oxygen. These shorter, invisible waves are so easily absorbed by the atmosphere that most of their effect is confined to the upper strata. Colorado presents ideal conditions for the victim of pulmonary tuberculosis—it is near to the upper regions where sunlight makes ozone and where the cool dry air preserves it.

The effect of too much ozone in the lungs is injurious—irritating; its oxidizing action is too vigorous. A little, however, such as one finds in the most invigorating air—about one part in one million—is stimulating to the nerves in control of circulation and respiration and a tonic to the whole system. The ozone-machines now on the market easily demonstrate this. A poorly ventilated room that confers on everyone in it that stuffy, stupid feeling and a headache is quickly transformed by a small electric ozone-machine. The organic poisons thrown out by the lungs—air sewage—are oxidized to harmless products and the system invigorated to deeper breathing.

In Europe such treatment is being applied to incipient tuberculosis, anemia, whooping-cough, and other diseases. It must be admitted that ozone in sufficient concentration rapidly to destroy bacteria is dangerous to man; so the beneficial effect is due only to the destruction of organic filth on which bacteria feed and to the ozone stimulus to the respiration and circulation.

HARRY N. HOLMES.

Richmond, Ind.

CHRISTIAN SCIENCE IN THE ZONE. CACTIN FOR SEASICKNESS

In the January, 1912, number of THE AMERICAN JOURNAL OF CLINICAL MEDICINE, page 5, under the caption of "Therapeutic Freedom," we read that Senator Works, of California, is much concerned because President Taft excludes the practitioners of Christian Science from the Canal Zone, for that is practically what the President's proclamation does. "There is a reason."

On one of my voyages between the Isthmus of Panama and New York, less than two

years ago, there sat at my table a group of Christian Scientists, while their latest victim lay oblivious to earthly affairs in a casket in the hold of the steamer. This unfortunate had been taken ill in one of the towns of the Canal Zone and had been "treated" by members of the aforesaid group. They had not considered it necessary to report the case to the medical authorities. The patient died. Still no report was made. The matter came to the notice of Colonel Gorgas, I was told, who ordered an autopsy, and the diagnosis of blackwater-fever was made. An eye-witness told me that the body of the deceased was jaundiced.

Now, this might just as well have been "yellow-jack," with all the attendant conditions favorable to wide-spread dissemination, since these near-wise ones would never know enough to protect the patient in the first three days of the illness from the approaches of the stegomyia.

Is it to be wondered at, then, I ask, that those responsible for the organization and maintenance of that magnificent sanitary work should resent the mischievous meddling of socalled Christian Scientists and object to having the general health of the zone menaced by these irregulars?

To change the subject. In the matter of cactin, of which drug a small quantity was sent me for use in seasickness, I have had occasion to use it in several cases, and decided benefit resulted; still, I wish to get wider experience before making a more definite report.

Anesthaine works excellently, in my experience, in minor operations and in extracting teeth, with the exception that I have not been able to produce more than partial anesthesia when abscess at the root has been present. This was well shown in a late case, where teeth in the upper jaw, both sides, were thus diseased and in which extractions were far from painless; while, on the other hand, in the same patient the extraction of a molar from the lower jaw, abscess not being present, was quite painless. The same procedure was used in both the upper and lower jaws in applying the anesthaine.

A word on carsickness. In my family there is a young lady of twenty-five who has always suffered severely, during street-car or railway journeys, from vomiting and prostration. Two years ago it became necessary to perform appendicectomy. She recovered promptly, and now is entirely free from the aforementioned tendency. This for what it may be worth. S. AUSTIN DAVIS.

Brooklyn, N. Y.

[Dr. Davis is surgeon on the Lampert and Holt steamship line, between New York and various South American ports. He has had an extensive and varied experience.—ED.]

REMINISCENCES OF LIFE IN THE BRITISH ARMY

(*Continued from the October issue.*)

We arrived at the Cairo Citadel in October, 1884. While there, I found plenty of time to look around. The citadel really is a fortress and is built on high ground and commands Cairo City. Inside of the citadel is to be seen one of the most beautiful mosques in the Mahommedan world, which is named Mahomet Ali's Mosque.

A few yards away from the mosque Jacob's well still exists. Once I threw a stone into it and found that it was about thirty seconds before I heard the splash. There is a secret winding stairway down to the water's edge, and here the well-wheel still stands, and there also is an inscription in a language unknown to any but the keeper of the well, who, I presume, is a direct descendant of Jacob. He will take anyone down for a piaster (5½ cents). I went down once, accompanied by a colleague, and it was a quarter of an hour's jog-trot, but it took us half an hour to climb out of it. The passage is so made that daylight is seen all the way down and there is no foul air. There were no steps but a gradual slant, the earth there being what is termed gardener's mold.

From the batteries of the citadel a beautiful view presents itself. As one is looking toward Kasr-el-nil, the city with its stately palaces and gardens and mosques meets the eye; at the back the great Sahara Desert, with the heights of Mokattom and its red-painted fort, on whose single turret flies the red flag of Egypt, with the white crescent and star in its center; on the east side is to be seen a small town, with its palace four miles across the desert known as Abasseyeh, and, if you had a field-glass with you, you might see an encampment of Beduins or desert thieves, or perhaps a caravan of camels guarded by Arabs armed to the teeth and their rifles across their saddles.

But looking toward the west is the most beautiful sight of all: as far as the eye can reach all is sand, about four miles from the citadel is the river Nile, and a few miles beyond are the two sets of sphinx and pyramids. The first set are those of Gareh, and the kings (pharaohs) are buried there. The second are those of Cheops, and here are

buried the royal descendants of the pharaohs. To see them at a distance, one would think that they were built to a point, but such is not the case. About twelve persons can have footing on the top of these pyramids. It takes about four hours to ascend one, and you require three helpers, two in front and one behind.

The diseases most prevalent among the natives, especially in the outlying villages, are purulent ophthalmia, smallpox, leprosy, and the worst of all calamities, the bubonic plague. In the last-named disease hypodermic injections of sterilized echinacea should play a prominent part, and, if I were to return there, I should take along a large supply of this drug (Lloyd's for preference), and also euphrasia for the ophthalmia, as I consider that it also has antiseptic properties; for I have used it externally on a native here for purulent conjunctivitis, where the other medicos could do nothing. I have used it for a number of years, getting the dried plant in packets from Parke, Davis & Co., and making a concentrated tincture with alcohol as I require it, and I am certain that besides being tonic and astringent it also has antiseptic properties.

For the leprosy I use chaulmugra oil internally, from 5 to 20 minims, gradually increased, several times daily; and the gurjun balsam externally.

Among the troops, dysentery and diarrhea were caused either by drinking unfiltered water or eating too much fruit.

Cholera and plague of course were epidemic.

Febricula, and enteric, remittent, and intermittent fevers were not greatly in evidence. These were caused mostly by lowered vitality or by drunkenness and exposure, as the night dews are very heavy here. There were several cases of sunstroke and a few were fatal. These cases mostly occurred in the morning.

Venereal diseases were rife among the troops, predominatingly gonorrhea; and there were a few cases of chancroid, due either to uncleanliness or to vice. Syphilis was rare. It was a crime for a soldier not to report "sick" if he had venereal infection, and so it was possible to check it before it went too far. Only one case of gonorrheal ophthalmia came under my notice, that of a gunner in the artillery, and he lost the sight of one eye through rubbing his eye with his hand while, I presume, dressing his penis when suffering from gonorrhea. Women of every nationality were to be found here and the majority of easy virtue. Drink was dirt-cheap (women and wine going together); a whole pint of wine, brandy or vermouth could be had for one franc, which is twenty cents.

One of the most interesting things of note were the donkeys and their keepers. These animals are the size of ordinary ponies and are taught numerous tricks.

The military pickets are sent out to take to the guard-room, under escort, those soldiers who misconduct themselves, or are violently and incapably drunk. When a soldier wished to escape these pickets, he would employ a donkey and its driver. If the soldier refused to give extra backsheesh (money) as soon as the donkey got opposite the guard-house, the driver would say something to his donkey and down the critter went on its knees, and, plunck, the soldier would go over the donkey's head. Then there would be some choice "Italian." The guard would come out and collar the poor soldier and put him in the guard-house, where he would be charged with drunkenness and in the morning be taken under escort to his regiment and taken before his commanding officer and fined or otherwise punished; but if he acceded to the driver's demands he would reach the citadel safely and pass the barrier guard unnoticed.

One day orders came for the troops to proceed to Sonakin, where war was in progress —but more anon. F. A. P. MONTAGU.

Auckland, New Zealand.

THE PRACTICE OF MEDICINE

I know a practitioner who says that he can do anything that any other doctor can do. And he *believes* he can—but I do not. He has no more idea of what is meant by the practice of medicine than a child. His idea is that the practice consists in knowing how to take the temperature, examine the pulse and "dose out" calomel and quinine. He fully believes that this is about all there is in the practice of medicine. And the average layman has about the same notion.

This is why the charlatan succeeds. If the laity knew as much about medicine as does the educated, well-informed physician, then our calling would collapse. Every man would be his own doctor. I would like, if I could, to put before the CLINIC readers the magnitude of the practice of medicine. I would have the reader try to understand what is meant by the practice of our profession.

Every thinking doctor has an idea that *he* is practising medicine—but is he? Is it not a fact that most of us are only doing what the

layman considers practising medicine? We take the temperature, examine the pulse, and "dose out" our calomel and quinine.

The Master Builder who made man well understood his business. He was not only a machinist of the highest type, but he was a chemist, an anatomist, a physiologist; not only this, he was a pathologist, a surgeon.

Did you ever notice an amputation made by nature; and do you understand how the work was done? How many processes of nature do you comprehend? Can you explain the *how* of digestion and assimilation; the *how* of oxygenation of blood; the processes of repair? Do you really comprehend fully any of the processes which occur in the practice of medicine?

Do you know how the calomel and quinine bring health to the patients you prescribe for? You say "No." You go on: "I prescribe for certain well-known conditions commonly called 'biliousness', and the bowels move freely and the fever subsides and the patient gets better and pays his bill, and *that* is what I am looking for. The *how* does not interest me so much as the result, and what I mean by result, is *money*. I am not practising medicine for my health. It is the 'bucks', the 'doughnuts'—do you see?"

Oh, yes, I see, and I see a little further. I see the practice of medicine put on a level with the business of the street-peddlers of herbs and bitters. The cheapjohn sells so many bottles of herbs and bitters for so much money, and if he gets the money, that is all there is to it and that is all he cares about it. He is called doctor, and so are you, and what is the difference between you twain? He sells bitters, you sell quinine. He knows how to combine herbs and bitters and to sell them; you know how to dose out calomel and quinine and charge for it. Both of you are practising medicine. Are you?

How do you like the picture? You would have Mr. Cheapjohn arrested and fined for practising medicine without a license, would you not? And you would charge him with getting money under false pretense? But did it ever occur to you that *you* are doing the same thing? If you know practically nothing more of the practice of medicine than how to dose out calomel and quinine and you are on the dress parade as a physician and surgeon, then are you not getting money under false pretenses, eh?

If the practice of medicine consists of nothing more than a scheme to make money and to offer the shortest route to get a dollar, with the relief of suffering humanity a secondary consideration, then there is no magnitude about it. It then is merely a form of commercialism and worthy of no more consideration than horse swapping—not even that, for the horse swapper shows his goods and gives you an opportunity to examine them, and there is some show for a square deal. But when you convert the practice of medicine into a trade, there is no show for your victim. The sick man is entirely at your mercy. He must take your word, risk your judgment, and rely upon your honor, whatever the result may be.

What is the value of a life? Of your life? When the monster (death) knocks at your door, what about the practice of medicine then? What kind of doctor do you want to take charge of your case? Would you like to have a few doses of quinine and calomel as the only barrier between you and the grave? Eh? Think about it.

You have fought a good fight and you are worn out and your time is about up. Your heart is weakened, your blood-vessels hardened, your muscles flabby, your skin dry, your kidneys and liver torpid, and you are so weak that calomel may land you in the boneyard and quinine would only increase your deafness. How about it now? Can you not realize the importance of having as your doctor a man who knows something of pathology, one who knows something more than the tongue will manifest, one who has other resources besides your calomel and quinine? Suppose, again, that your wife or your daughter is in the throes of puerperal convulsions—how about herbs and bitters now? What will your calomel and quinine do here?

Let me tell you something and make a long story short. If you are not able to do more than prescribe calomel and quinine, you are comparable to the old midwife who can manage any case of obstetrics where there is nothing to do, but who is entirely helpless where something ought to be done. You are not practising medicine, you are only pretending to; and if you are satisfied to continue in this rut and will not study medicine and properly prepare yourself for practicing it, you are a fraud and should have your license revoked. Awake, my brother, and see yourself as you are, and go to work. Learn to practice medicine.

W. P. Howle.

Charleston, Mo.

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[Dr. Howle's little homily is one which all of us should take seriously to heart. The

practice of medicine is one that involves grave responsibilities. The time is past when any honorable practitioner can depend upon an undeviable routine in the management of his cases. Progress is being made in our art at a rate that is almost beyond comprehension to the layman, and, I regret to say, to many who call themselves physicians. It is something more than a *convenience* for the practitioner to be conversant with this progress—it is a duty, so imperative in its character that ignorance becomes virtually a sin against society.

There is no excuse for ignorance. The opportunities for knowledge are now at the door of every practitioner, and failure to perfect himself in ninety-nine cases out of the hundred can be attributed to one reason only —laziness. Slip-shod methods in diagnosing and treating disease (another term for laziness) are responsible for most of the mistakes in practice, and it is these mistakes that cause the sacrifice of life. Thoroughness in all clinical work is the great necessity. Diagnosis should mean more than the routine taking of temperature and feeling the pulse; it should mean the securing of *all* the information concerning a patient which it is possible to obtain—knowledge which involves the use of instruments of precision and resort to the help of the clinical laboratory. Treatment should mean something more than the routine giving of a cathartic and the textbook tonic; it should be the intelligent effort to meet every deviation of function with the remedies best suited and used in the most intelligent way.

The best practitioners are those who know most about their patients—who have studied them, and mastered the means for their diagnosis and their relief. Routine is a great enemy of success. Intelligent industry—thoroughness—is the best cure for failure.—ED.]

OCCUPATIONAL NEUROSES

At the Fifteenth International Congress of Hygiene and Demography recently convened in the national capital, before Section Four, Tom A. Williams, M. B., C. M. Edin., of Washington, D. C., read an instructive paper on occupational neuroses, of which the following is a brief abstract.

In the first place, the term neurosis, the speaker held, is a misnomer; for the socalled neuroses of occupation are strictly psychodynamic inhibitions of disorders in the habitual series of coordinated associations gained by education in some art. That want of harmony in the controlling of the mechanism is the fault, and that the disharmony is always psychological, was asserted in the introduction to a series of studies of cases of occupational "neuroses" deliniated in detail.

Many cases of various forms of occupational or professional neurosis, including traumatic neurosis of railway and industrial accidents, were described. In these were shown the necessity of addressing the treatment to the psyche, or the mind, of the patient. "It is not an incapacity of muscle and nerves to perform their functions, for this is intact except for performing the particular professional acts which fail." Four of the cases described were those of writer's cramp, the commonest occupational "neurosis."

One of the cases described was that of a navy paymaster who suffered with writer's cramp, or palsy, to the extent that he was unable, as the day progressed, to write his signature legibly by the time afternoon had arrived. At the patient's first interview with the physician the former was brought to appreciate the psychogenesis, or mental origin of the trouble. The patient with this fact clearly in mind and through his own efforts, as directed by the physician, entirely recovered within a month's time. Another case of writer's cramp was shown to have arisen entirely from impatience, on the part of a woman, of routine letter writing. After a somewhat longer period than in the first case, her writing was practically normal. Two cases of telegrapher's cramp were also described.

The chief difficulty in treatment is to persuade the patient that his disorder is not physical, as he has been told so so often. When this is done, graduated exercises accomplish the cure.

REMARKABLE RECOVERY AFTER COMPLETE EVISCERATION

In *The Canadian Medical Association Journal* for June, 1912, Dr. Thomson, of the Canton Hospital, describes an interesting case of attempted suicide in a Chinese broommaker who had failed in business. He had injured himself with the aid of a razor, and there was no doubt about the sincerity of his efforts or the keenness of his razor. Upon admission to the hospital, he was just recovering from shock. His pulse was rapid and wiry; skin, moist and cold; he was conscious and complained of severe pain.

Uncovering the abdomen, there came to view yards of small and large intestine, the

stomach, omentum, and most of the liver, all completely eviscerated, mixed with blood, and rubbing against his dirty winter-clothing. Across the abdomen there were eight gashes, two of the wounds, each twelve inches in length, completely opening up the abdomen from side to side. The upper one severed the lower costal cartilages, the abdominal muscles, the peritoneum, and made four long and deep cuts into the substance of the liver. There were also several wounds in the stomach down to the mucous membrane, but not penetrating. The lower cut severed the muscles and peritoneum, but did not injure the adjacent abdominal organs. The stomach and bowels were distended with gas.

Under chloroform narcosis, the abdominal organs and the entire wound were cleaned up as well as possible and the wounds in the liver and stomach sutured, the air from the latter being expressed manually by way of the esophagus. A great difficulty was encountered in restoring the organs to their proper places in the abdominal cavity but the doctor finally succeeded and pulled down the omentum, covering the other organs. It was absolutely impossible to bring the margins of the wound together by sutures, an interval of about an inch and a half being left through which the omentum showed. This gap was covered with gauze and gauze drainage inserted.

In the evening of the same day, the patient cut his throat by means of a piece of glass which he had obtained by breaking a tumbler. He had made a deep gash through the middle of the neck about an inch and a half wide, perforating the cricothyroid membrane. This wound was cleansed and sutured. The abdominal wounds were dressed daily and the patient treated with strychnine, normal salt solution, and so on.

As was to be expected, the patient became much emaciated and showed late symptoms of shock, although the temperature never rose above 99.5° F. Suffice it to say, that on the twentieth day the temperature was found normal, pulse 90, the appetite was voracious, in place of the early enormous expectoration, this was only slight, and there was left a large granulated gap in the abdomen to be closed by operation later on.

THE DOCTOR'S DUTY

It was August, 1910. The weather was hot, mercilessly hot, following a few showers that filled the water-holes and ditches. The festive mosquito was abroad in the land and there was sickness everywhere. For three weeks I had been constantly on the go, and for three days and three nights I had not been at home at all. On the evening of the third day I got home at ten o'clock, mentally and physically exhausted. Turning my horse into his stable, I left the door open and said to him: "Old fellow, you can go tonight, I am going nowhere, no matter what the trouble is."

Going into the house, I found the children all asleep. Their mother was sitting by a table sewing on a little garment that spoke of coming events. After greeting her I said:

"Mumsie, don't tell me of any calls. I am going nowhere this night. I am completely tired out, more so than I ever was in my life."

"No, indeed," she spoke back, "you are not going to go anywhere tonight, and not for several days and nights to come. You are killing yourself for these people, and what do they care for you? Nothing! They are ungrateful; they don't pay you—and you know it."

After a bath and a light supper and a short talk with my wife I went to bed. Just as I was dropping off into a deep sleep I heard, "Doctor, doctor, oh doctor!" at the back gate.

I pretended not to hear. The calling continued, when my wife came to the bed and gently shook me and said: "Somebody is calling you at the back gate, but you are *not* going; you are only needlessly killing yourself for these people. Go out and tell the man that you can not go. You can send some medicine, but you must not go."

Getting into my slippers I went out. It was Jeff Wright, and he said to me: "Doctor, Arch Beard came to my house an hour ago and asked me to go and tell you to come to his house as quickly as you could. His twins were dying. He did not believe that you could do them any good, but, please, to come as quickly as possible."

I said: "Mr. Wright, I have been up for three nights. I am dead-tired and, besides, both of my horses are out in the big pasture and forty men and a boy could not catch them at night."

The man persisted: "Doctor, he was crying and seemed awfully anxious for you to come. I wish you would go."

I told him to wait a moment—I intended to go even if I had to ride the messenger's horse. Going in I said: Mumsie, it is Jeff Wright, and he says that Arch Beard's twins are dying and Arch wants me to come immediately; but I am not going, for I am dead on

my feet. There is a limit to human endurance and I've reached it."

Then coming over to me and putting her hand on my shoulder, this wife of mine pleaded: "But you are going, dear; of course, you are! Suppose one of our own children were dying, and you were away, and I sent for Dr. Simrall, and he sent me word that he was 'dead on his feet and could not come'—what would you think? You *are* going."

"But, Mumsie, all of our horses are out and you know that I can not catch them."

"Julien's pony is in the orchard, you can ride her. So, now hurry and I'll help you."

So, in but a few minutes I was off, riding the pony, a springy-back trotter. For nine miles we went, every foot of it a bridle-path. Up hill and down hill, through cave hollows and across ditches and creeks we went, never stopping a moment. Jeff Wright stopped at his home and I went across the bottom to Arch Beard's.

Dropping the pony's bridle, I went into the house. Mrs. Beard was sitting by the fireplace crying and Mr. Beard was sitting by the window looking out into the night. Said he, "Doctor, you are too late, they both are dead."

The two little children were lying on a quilt on the floor, dead, so it seemed. They were wet from head to foot, from a vain effort made to resuscitate them, and were as cold as ice. I could find no pulse-beat. Raising their eyelids, I could see only the whites of their eyes—spasm. I knew now that they were not dead. Then I said, "Arch, they are not dead, and if you will help me we shall save them."

In a moment everything was activity. I gave them a dose of atropine, hypodermically, and got them into dry wrappers and on a dry quilt. I then gave them each a full enema of warm soapy water. In a short while this returned, bringing an enormous mass of corn, cabbage and beans. They had spent the day with their grandmother, and this was the first of such food they had ever eaten.

I then gave them, by enema, six or eight grains of chloral hydrate, and had their arms and legs rubbed vigorously. In a little while I could see the blood coming back to the surface and that the congestion was being relieved. In about one hour they were quietly sleeping—saved. There was a happy father and an overjoyed mother.

After fixing up five or six doses each of calomel and of soda, I lay down at 2 o'clock in the night, on a pallet on the gallery, and went to sleep. I was awakened by the sun shining in my face. After starting them both on a solution of intestinal antiseptic and fixing them a solution of aconitine, to be used in case of fever, I left for home, riding the little pony, unmindful of the loss of dignity thereby, but happy in the thought of duty done.

C. S. HYLAND.

Yokena, Miss.

ACUTE INFECTIOUS JAUNDICE, OR WEIL'S DISEASE

Acute infectious jaundice is a disease characterized by yellowness of the tissues, fever, muscular pains, severe vomiting, and enlargement of the liver, and doubtless is caused by a specific microbe. It is supposed to occur in the summer months, although an epidemic in my vicinity occurred during extremely cold weather. This epidemic gave me opportunity for study. The symptomatology was as follows:

The disease is announced as follows: The child is listless and wants to lie down. There is more or less severe headache. The temperature in a few hours ranges from 102° to 105° F. The temperature in five patients remains elevated from a few days to one week. There is a general aching. No chills were observed. There is loss of appetite and often severe explosive vomiting for the first few days; this occurs at any hour of the day or night, the parents being aroused to find the child vomiting over the bed or floor. Water and food often produce immediate vomiting. The throat is sore. The stools are clay-colored, and this condition persists for a week or ten days. The urine is dark of color. Prostration is marked. The itching of the skin is intense and requires treatment.

An early symptom is abdominal tenderness, especially over the region of the lower border of liver and right of umbilicus. This abdominal tenderness is quite severe. (In one case, of a man aged eighteen years, it was intense.) After a few days, the conjunctivæ become yellow, and the color also is present on the skin; although in children the color is not the intense yellow one might expect to find. In fact, in some cases, the discoloration of the skin is very slight. The disease persists for two or three weeks, but improvement sets in after five or six days. (There were no deaths up to this immediate point.)

The liver enlarges, and this enlargement is persistent. (In one case, of a boy aged seven,

at the end of two months, the liver was two inches below the costal margin.)

The disease is not immediately recognized, being likely to be mistaken for some digestive or intestinal disturbance; but soon the characteristic symptoms appear. The mortality is said to be from 10 to 30 percent. None died in this epidemic of 16 cases.

The treatment is symptomatic and supportive. The diet must be extremely low for a few days, the first eighteen hours no food by mouth being permitted, and only enough water to allay the thirst. Milk as a diet, to my notion, is a food to be avoided after the first week. The diet for the first week must be beef broth (home-made), jelly, gruels, malted milk, Nestlé's food, water, the juice of orange, lime, or grape-fruit, farina with a little sugar and butter. Small feedings every three hours is better than larger quantities at great intervals; but all of these should be used sparingly the first few days, because vomiting is extremely easily excited.

When the temperature ranges high, sponging with cool water may be resorted to, or small doses of phenacetin, 1-3 grain, with caffeine citrate, 1-2 grain, may be given.

For the abdominal pain, nothing excels the hot-water-bottle, and children like to have it applied. An enema is given daily, also a warm sponge-bath.

Rhubarb and soda, for its supposed action on the liver, and sodium phosphate every morning before any food is taken. Sodium salicylate and ammonium chloride were used in the young adults, but not in the young children, for fear of making a bad stomach irritation worse.

Lavage of the stomach would seem indicated, but was not tried, though I believe it would allay the vomiting better than any other means. After four or five days, tincture of nux vomica and diluted hydrochloric acid was resorted to.

In this little epidemic of acute infectious jaundice of sixteen cases, the oldest was a man of eighteen, and the youngest a girl aged three. In one family of six children, three had the disease. In another family of three, all had the disease, starting with the oldest, aged ten, in three weeks the boy, aged seven, and, in about six weeks the girl, aged three. Why the long, uneven period of incubation?

In the same family, the period of incubation varied from three to six weeks. In one family of six, three had the disease; in another of three, one boy was sick; in another of three, all were sick, no precautions of isolation being taken.

If I remember correctly, this disease occurred epidemically in western Kansas some years ago, but I cannot recall the physician's name who reported it.

MAYER SHOYER.

Blaine, Tex.

ORDER YOUR 1912 INDEX

Older subscribers of CLINICAL MEDICINE need not be reminded of the fact that, owing to its bulkiness, the Annual Index of this journal is not bound into the January issue or sent out promiscuously, but that it is cheerfully mailed to everyone sufficiently interested to make a request for it. (A few words on a postal card, signing address plainly, will do.) For the benefit of newer readers it may not be amiss, however, to repeat what so often has been pointed out, namely, the great importance to every wide-awake physician of carefully preserving all his issues of CLINICAL MEDICINE and having them bound, with the index, at the completion of each volume. For, while many do not realize it as they lightly cast each successive monthly number into an obscure corner or pile it upon the top of their desk, the numbers collectively constitute an inexhaustible mine of invaluable information for the intelligent practitioner, a store-house of practical and theoretical hints that grows in encyclopedic range as year by year the substantial volumes increase in number. And they should occupy the handiest shelf in the bookcase.

As our readers are aware, with the accumulation of experience, our annual index has been improved upon from year to year; for bound volumes of periodicals are of little value unless accompanied by an exhaustive and completely compiled index. Thus, several improvements have been effected this year, to which we will briefly call attention, the most important of which is that the authors have been grouped by themselves so that now there are four departments: (1) The main, or general subjects, (2) editorials, (3) book reviews, and (4) authors. This latter innovation will prove helpful in looking up anything, while simplifying the subject-matter department. The reason for separating editorials is, that many bear headings or treat upon questions that cannot be indexed by appropriate catchwords.

In an aim to aid the reader in every way, the number of cross-references and suggestive synonyms has gradually been added to, and this year has been appreciably augmented.

This feature cannot fail to prove helpful in tracing any particular subject. Particular attention here may be directed to the fact that, agreeable to the style followed by this journal, in the anglicized forms of words from the Latin and Greek the digraphs "æ" and "œ" are consistently represented by simple "e." This does not apply, of course, to those words and names when used in their strictly Latin or Greek form.

Readers will observe that, for now several months, the numbers of the first and the last pages of each monthly number of CLINICAL MEDICINE are printed on the back of the cover. This little "kink" is a great aid in finding anything, after consulting the index, before the volumes are bound.

We here renew our customary offer, that we will arrange to bind the journal for our subscribers, when desired, for $1.00 per volume. We do this as a convenience for them, without profit to ourselves.

And, now, once more—mail your request for the 1912 index (or for any of the last few years), and do it *now*. Also, don't fail to get your CLINIC volumes bound.

QUACKS

What is a quack? Answer: It is an individual (man or woman) who claims to be able to diagnose and cure incurable diseases. Some of them have a state license, but most of them haven't. They make a specialty of something, such as cancer, consumption or chronic diseases.

Very few, if any, chronic diseases are ever cured. No traveling man can do anything more for you, nor even as much, as your family physician. Most traveling fakirs never saw the inside of a medical college. They make you promises that they can't keep. They collect a certain amount (this varies a great deal—it depends on what they think they can bleed you for) and you never see them again. They would rather tell you a lie than the truth. They can get you to believe their lies quicker and easier than your family physician can get you to believe the truth. Your family physician will not lie to you nor deceive you. He knows he cannot build up a practice by lying and deceiving his patients. The traveling man is not trying to build up a practice. All he is after is your money, and he usually gets it—and you get nothing; only his promise, which is worthless.

It is always safe to ask your family physician for advice when you are sick. If he can help you he'll do it, and if he can't, nobody else can, as a rule. There are some incurable diseases. Often people think, because their family physician can't cure them, that some other doctor can—that's where they are mistaken; and this often leads them to patronize fakirs. The quacks promise everything. The idea of diagnosing any and every condition as catarrh of the system, cancer or some other thing! It is preposterous. Nobody ever had catarrh of the system.

Oftentimes people are persuaded to hand the traveling fakir from five dollars to fifty dollars, and all they really get is a promised cure. Sometimes these same people think the family-physician's bill is too high after he has given his time and real medical knowledge (backed by a diploma from a medical college, a state license, and his experience), not only in their behalf, but in his own behalf, by establishing his reputation as an honest, competent, conscientious physician. Before patronizing a traveling quack ask him to show you his authority, his state license. That, very often, he cannot do. That will identify him, and as he is a stranger, he should be identified. O. C. CHURCH.

Greenville, Ill.

[This information Dr. Church places in the hands of his patrons. It is a good way to fight the traveling quack.—ED.]

THE DEATH OF DOCTOR EPSTEIN

Just as the last form of CLINICAL MEDICINE was going to press, the news came that our dear old friend and colleague, Dr. Ephraim M. Epstein, for many years connected with CLINICAL MEDICINE in an editorial capacity, had passed away. He died on Sunday, January 26, after an acute illness (acute indigestion) lasting only two hours.

While we have seen that our old friend was gradually growing weaker—to be expected in a man of his extreme age—he has seemed as intellectually acute as ever. Every day he came down to his desk in the library, and he browsed around in the foreign journals and among the old books he loved so well with the same keen zest that has characterized him all his life, up to the very day of his demise.

For this issue we have time only to prepare this brief notice of Dr. Epstein's death. Next month we shall tell you something about his life work—about the man himself, as we, his colleagues, knew him.

JUST AMONG FRIENDS

A DEPARTMENT OF GOOD MEDICINE AND GOOD CHEER FOR THE WAYFARING DOCTOR

Conducted by GEORGE F. BUTLER, A. M., M. D.

(*Continued from January, page 102.*)

HAVING decided upon the posture of the patient, the degree of rest or of movement permissible, the need for a nurse to administer and to companion, we shall next have in mind the surroundings of the sick man. If confined to the room, the choice of this, its seclusion yet accessibility, its aspect, airiness and warmth, in brief its hygienic qualities, these all will demand our attention. We must be content to leave details, for so long as we are clear as to what it is that we wish to secure, namely, the patient's comfort and well-being, the particulars may well wait upon the occasion.

We may here with advantage remember a favorite dictum of Sir William Jenner, that the best room in the house is not too good to be a sick-chamber, and we shall not forget, especially where there is prospect of protracted illness, that the smallest trifles, even to the pattern of the wall-paper, are not beneath consideration. The weakened mind is irked by small things, and, owing to the facility with which it perverts and distorts, it is easily obsessed by shapes and colors apparently of the most harmless description. It is thus that a picture or the design of a paper may "get upon" the nerves of the patient and be literally an eyesore.

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The atmosphere of the sick-room should be as reposeful to the mind as to the body. Deliberately, after the manner of the wounded animal, the patient has withdrawn himself, or suffered his withdrawal, from the commerce of the world. See to it that its wares do not find ready access; the sufferer is in no mood to traffick, mind and body alike resenting as irritants those very influences which in health are wont to act as exhilarants. The visitor then, if admitted, will bring with him such news only of the outside world as may be deemed acceptable and capable of giving that assurance for which the sufferer craves.

God loveth a cheerful giver; unto none is the cheerful gift more welcome than to the sick, and the nature of this cheerful gift is repose of mind. Open wide, then, the door to all health-giving influences, physical, mental, moral; but make it fast against all those which would hinder the healing powers in quiet session.

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There is quite frequently a spread of infectious diseases by means of domestic animals. We may not in every instance know of the receptivity, but we do know that they have been exposed to infection. There are instances in which the animals are infected with the disease, but in this particular older animals are more immune than the younger ones, and, furthermore, it will readily be recognized that the latter are most frequently fondled. Hence conditions provide a greater opportunity for the spread of diseases.

Thus Dr. W. W. Babcock refers to the methods by which diseases may be conveyed from domestic animals to man by means of one of the following methods:

1. Direct contact. Many parasitic skin diseases occur in the dog, cat, and horse, and are transmissible by contact to man. These include forms of ringworm, or tinea, and scabies.

2. Inoculation. The most serious disease inoculated by bites of domestic animals is rabies. This disease occurs most frequently in dogs, but may affect cats, horses, cows, and other domestic, as well as wild, animals. This infectious principle is present in the saliva of the rabid animal. Inoculation may result from the entrance into the body of fluids or discharges from animals suffering from tetanus, anthrax, glanders or foot-and-mouth disease.

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Suggestive evidence is found in the statistical studies of McFarland and the reported findings of tetanus bacilli in vaccine. Tetanus bacilli are frequently found about stables; and cattle, although less susceptible than horses, are not immune. Operative tetanus has been attributed to the use of kangaroo-tendon (in reality horse-tendon) and to the

injection of solutions of contaminated gelatin. Punctures by splinters, nails or other objects about stables are often followed by lockjaw, these objects apparently being contaminated by the dejections of horses.

3. Aerial infection. In coughing and snorting, horses suffering from glanders throw into the air liquid particles laden with the bacillus mallei. These particles may be inhaled by persons or by lower animals, may fall upon wounds or contaminate various inanimate objects in the immediate neighborhood. In this manner or by direct contact with the discharges from the noses this virulent disease is spread. In a similar manner organisms of tuberculosis may be conveyed from cattle to other cattle or to man. Psittacosis, a pulmonary disease of parrots, may likewise be transmitted to the human family, producing a serious pneumonic disorder. From sick parrots imported from South America to France, seventy persons in Paris became ill with psittacosis and thirty-four died.

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The evidence that cats, dogs, horses or fowls may contract diphtheria and scarlet-fever does not seem conclusive. It is known, however, that dogs, cows, and other animals may acquire tuberculosis.

4. Indirect infection. Parasites may be carried from domestic animals to man by fleas, lice, flies or other insects. The casual agent of many infections may be carried on the fur, feet or in the mouths of healthy animals, especially those serving as pets. As will be considered, foods of animal derivation are responsible for a number of diseases.

Animals suffering from diseases dangerous in man, such as plague, anthrax, and glanders, should promptly be killed, the bodies burned, quicklimed or buried deeply. Animals with advanced tuberculosis should be destroyed. Cattle with early lesions and without cough may be segregated and used only for breeding purposes. Rats should be exterminated in the presence of contagious disease. Domestic animals suffering from parasitic worms dangerous to man should be killed, or else segregated and treated with some efficient anthelmintic. Care should be taken that their discharges do not disseminate the parasites. Animals afflicted with vermin, tinea, scabies or other contagious skin disorders should be treated with an appropriate parasiticide.

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It seems to be an indisputable fact that the rapid advance, during the last fifty years, in what we are pleased to call civilization is steadily bearing fruit in a rich crop of new diseases of the body and disorders of the mind. As fast as progress in medical as well as general science enables us to combat, and often conquer, the old diseases, the habits and conditions of modern life seem to give birth to new and undreamt-of maladies. It is, of course, not possible to say to what extent our pre-Norman ancestors were troubled with "nervous" hypochondriasis, "liver," clergyman's sore throat or housemaid's knee, with which, it is evident, they could not have been afflicted.

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The ridiculous desire of parents that their children should acquire some degree of mechanical dexterity on the keyboard of a pianoforte, whether they have any real aptitude for music or not, has produced a good deal of harm. It has created a disorder called "musical overstrain." It has been stated by a German observer that much of the nervous delicacy so common among girls is traceable to excessive diligence at the piano. When, as sometimes happens, six or eight hours are daily absorbed in repeating a hum-drum series of manipulations, the wonder is that nature so long endures the drudgery. Musical mediocrity is surely a poor compensation for overstrung or shattered nerves.

Railway and automobile traveling is responsible for frequent cases of nervous debility and exhaustion. Many persons try to live a dual life—to be a busy city man during the day and country gentleman at night. The consequent long railway journeys and fast automobile rides are more trying than most people suppose. A man with a strong constitution may pass through the ordeal unscathed, but many people suffer in later life from an impaired nervous system, without being aware of the real cause.

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Cycling is a boon that we could ill dispense with, yet there is a distinct danger of the rider acquiring a bad style and developing that ugly deformity known as the "cyclist's back." Even typewriting has produced a new complaint, that is called the "typewriter's disease." The operator, in consequence of overstrain and long application in spelling out words over the keyboard, gets attacks of temporary mental paralysis, which render work absolutely impossible. Then the excessive use of our brains in nearly

every profession has produced that very troublesome complaint, insomnia.

Two quite new diseases may now be added to the list of those arising from conditions of modern life. The first is a malady associated with football. It is known as "scrum-pox," and is an infection that is liable to be transmitted through the abrasions which rough jerseys are apt to cause on the faces of players during "scrummages." When it once breaks out, it seems that the most careful precautions have to be taken for the dis infection of jerseys and the avoidance of abrasions.

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The other complaint is "golf-arm." This disease is not to be lightly dismissed, and its announcement will cause a shock to many of our readers. It appears to be due, we are told, "to repeated sudden and whiplike contractions of the triceps bruising the musculospinal nerve." There are painful points where the nerve pierces the external intermuscular septum, and numbness with tingling in the dorsum of the thumb and first finger. Embrocations will not allay it, and no cure, we believe, has yet been found. The disease, of course, spoils a man's enjoyment of golf.

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Parents might save for themselves and for their children endless suffering, if they understood from the beginning that children are significant exclusively as new personalities, with new gods and new aims; with the right to protect their own nature with the duty of finding out new paths, without forfeiting the right of being respected by their parents in the same degree as the latter, on their side, retain the right of being venerated by their children—for the best of what they are or have been, what they have done or have willed.

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Great love arises only when a desire of a being of the other sex coalesces with the longing for a soul of one's own kind. It is like fire, the hotter it is, the purer; and differs from the ardor of desire as the white heat of a smelting-furnace differs from the ruddy, smoking flames of a torch carried along the streets.

Let us all determine to see the good that is around and about us, and quietly do our best to check evil when we see it, but say as little about it as possible, realizing that the greatest thing in the world is Love—ever singing

In sorrow and in sighing—
In darkness and in light,
Just keep this motto flying:
"The world's
All
Right."

Think hate and wrong are dying
From human sense and sight,
Just keep this motto flying:
"The world's
All
Right."

A CORRECTION IN RE LLOYD'S ARTICLE

Through some unaccountable oversight we failed to give proper credit to *The Journal of the American Pharmaceutical Association*, in which appeared Professor John Uri Lloyd's fine paper giving statistical information concerning the use of the different vegetable remedies by American physicians, referred to in the first editorial in the January number of CLINICAL MEDICINE. This paper is one of the most interesting which it has been our privilege to read for many months. We hope that every reader of THE CLINIC will write Prof. Beal, editor of *The Journal*, at Scio, Ohio, enclosing 20 cents in stamps for a copy of the November issue, in which it appeared.

In this connection we wish to add that Prof. Beal is producing one of the most interesting and helpful pharmaceutical journals ever published in America. Physicians would enjoy reading and should receive substantial help from its pages.

We regret that unavoidably we are compelled to place this "correction" away back into this corner of our journal, when properly it should appear in the editorial pages.

WHAT BECOMES OF THE PRESCRIPTION?

Dr. Elmer N. Funk, of Shreve, Ohio, sends us a clipping from the department of Household Suggestions of *The Cleveland News*, which reads as follows:

KEEP PRESCRIPTION NUMBERS.—When your family physician writes out a prescription for certain ailments, keep the number of the prescription and the place where it was filled in a little book which you can call "Medicine Directory." Next to the number, write the ailment for which it was given and name of doctor. You may not need the medicine again for some time, but should the ailment return, you have only to consult your directory, get the number and have the prescription filled.—Mrs. W. L.

We are curious to know what the readers of CLINICAL MEDICINE think about this.

AMONG the BOOKS

ROBINSON: "PATHFINDERS IN MEDICINE"

Pathfinders in Medicine. By Victor Robinson. With a Letter from Ernst Haeckel and an Introduction by Abraham Jacobi. New York: *The Medical Review of Reviews*. 1912. Price $2.50.

"Who is Aretaeus?" the author of the essays before us exclaims on page 35, and the same question had struck the reviewer when this essay on Aretaeus first appeared in *The Medical Review of Reviews*. Mr. Robinson proceeds to regret that Aretaeus is a forgotten physician, and undeservedly so.

Although but little is known about this ancient Greek physician, the assertion seemed passing strange to this writer. For, do we not owe the first clinical description of diphtheria to Aretaeus? Was it not a well-known fact that the classical picture of the habitus phthisicus, which is ascribed sometimes to Sydenham, sometimes to Schoenlein, was first given by Aretaeus? Did not the famous Kuehn edition of ancient medical authors contain the works of Aretaeus? Did not Francis Adams prepare an edition for the Old Sydenham Society in London, which was published in 1856 and forms a beautiful volume of over 500 pages? And does not Waldenburg mention the Cappadocian in his history of tuberculosis (1869)? Is he not cited in the classical historical works of Haeser, of Neuburger, Pagel, and others? And has not this writer frequently consulted the scholarly edition of Aretaeus' works by Crassus?

And, yet, we do not know but what the author of "Pathfinders" is right and that we owe him a debt of gratitude for having resuscitated, as it were, the memory of this meritorious physician, whose writings are of such great interest.

Mr. Robinson's essays on "Pathfinders in Medicine" should, to use a hackneyed phrase, occupy an honored place in the library of every physician, not only because a number of men to whom medicine owes much have been discussed and memorialized appreciatively, but because Mr. Robinson has in a very brief time entered the foremost ranks of medical historians owing to his sympathetic treatment of his subjects, and also because of the enthusiasm and appreciation that he evinces for them.

The diction of these essays is splendid. It is more than an easy flow of words; it is clever in the best meaning of that much abused term. The author of "Pathfinders" is a *rara avis* in medical literature; he does not only describe his subject clearly and lucidly, but he makes it attractive. We hope to read much more from his pen.

ROBINSON: "ESSAY ON HASHEESH"

An Essay on Hasheesh: Including Observations and Experiments. By Victor Robinson. New York: *The Medical Review of Reviews*. 1912. Price 50 cents.

To say that this "Essay on Hasheesh" recalls in a way De Quincy's "Confessions of an Opium Eater," is trite, because other reviewers have made the same remark. There are, however, far more differences than points of similarity. In fact, Mr. Robinson's essay stands in a class by itself. Of immense interest on account of the careful notes which he presents on the action of this strange drug, the little volume not only instructs, but it is highly entertaining, owing to the author's happy faculty of presenting all the subjects, in which he is interested, in an unusually attractive form. The little book is well worth reading, and having been read once, will be reread with pleasure.

POTTENGER: "MUSCLE SPASM"

Muscle Spasm and Degeneration (their importance as diagnostic aids and their influence in producing and altering the well-established physical signs; also a consideration of their part in the causation of changes in the bony thorax), and light-touch palpation (the possibility and practicability of delimiting normal organs and diagnosticating disease-conditions within the chest and abdomen by very light touch). By Francis Marion Pottenger, M. D. With 16 Illustra-

tions. St. Louis: The C. V. Mosby Company. 1912. Price $2.00.

This volume presents the results of Dr. Pottenger's studies, for a number of years, concerning which he has kept the profession informed in many contributions to medical journals. The work is of great importance to the tuberculosis physician, but the general practitioner also will find much that is interesting and of value.

The author's method of light-touch palpation and his ideas of muscle spasm and degeneration being symptomatic of intrathoracic inflammation and disease present problems that are of immense interest, and that widen and expand our understanding of the disease which has been studied more than any other and is yet not fully understood. The book is recommended for careful study.

GRIMSHAW'S "MEDICAL GUIDE"

The People's Medical Guide. Points for the patient, notes for the nurse, matter for the medical adviser, succor for the sufferer, precepts for the public. By John Grimshaw, M. D., B. S. New York: The MacMillan Company. 1912. Price $3.00.

Grimshaw's Medical Guide is intended to present to the laity a theory and practice of disease, as it were, in a form in which it should be useful to them. Medical lore is no longer a secret lore, and it is right that the people should be informed to a certain extent of medical matters. Dr. Grimshaw is not a novice in this field, and has presented us with an excellent and useful work which may be given to intelligent patients with confidence.

FREEMAN: "SKIN GRAFTING"

Skin Grafting. For Surgeons and General Practitioners. By Leonard Freeman, M. D. With 24 illustrations. St. Louis: The C. V. Mosby Company. 1912. Price $1.50.

A brief but withal fairly complete presentation of this interesting subject, which has assumed such immense importance in the treatment of destructive lesions of the skin.

DOMINICI: "RADIUM-THERAPY IN MALIGNANT DISEASE"

The Technique and Results of Radium-Therapy in Malignant Disease. By M. Dominici, M. D., and A. A. Warden, M. D. Reprinted from *The British Medical Journal* of August 27, 1910, with additional plates and more recent notes. London: J. & A. Churchill. 1912. Price 75 cents.

"REPORT (1912) OF THE ILLINOIS CHARITIES COMMITTEE"

This, the second annual report of the State Charities Commission to the Governor of Illinois, contains much of interest to physicians, not alone of those of Illinois, but in general. We believe that physicians residing in this state may obtain copies by writing to the secretary of the Charities Commission in Springfield, and we strongly urge them to do so. The report does not lend itself readily to review, because of the multiplicity of subjects considered. It should be read at leisure and used as a reference manual.

SIMON: "CHEMISTRY"

Manual of Chemistry. A guide to lectures and laboratory work for beginners in chemistry. A textbook specially adapted for students of medicine, pharmacy, and dentistry. By W. Simon, Ph. D., M. D., and Daniel Base, Ph. D. Tenth edition, thoroughly revised. With 82 illustrations, a colored spectra plate, and 8 colored plates representing sixty-four chemical reactions. Philadelphia and New York: Lea & Febiger. 1912. Price $3.00.

The object of this manual is to furnish to the student, in concise form, a clear presentation of the science of chemistry, an intelligent discussion of those subjects which are of interest and a trustworthy guide to his work in the laboratory.

PLATT-PEARSON MEDICAL CHEMISTRY

Practical Medical Chemistry for Physicians and Students. By Charles Platt, A. C., M. D., Ph. D., F. C. S., London, and William A. Pearson, Ph. C., Ph. D. Sixth edition. Rewritten and enlarged. Philadelphia: John Jos. McVey. 1911. Price $2.50.

In contrast to the manual of chemistry just discussed, the present volume is intended for physicians as well as for use in college. It presents the essentials of medical chemistry, containing chapters on physiological and clinical chemistry, by which the physician shall be enabled to ascertain the condition of the normal and pathological excretions and secretions of his patients, from which he can derive such far-reaching indications for treatment. The book is by no means a new one, having been before the profession

a number of years. Its value is enhanced by being interleaved for personal notes.

"PROGRESSIVE MEDICINE"

Progressive Medicine. A quarterly digest of advances, discoveries, and improvements in the medical and surgical sciences. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. December 1, 1912. Philadelphia: Lea & Febiger. Price, per annum, $6.00.

The fourth number of the present volume discusses the advances in our knowledge on diseases of the digestive tract and allied organs, diseases of the kidneys, genitourinary diseases, surgery of the extremities, shock, anesthesia, etc., and presents a splendid practical therapeutic referendum. *Progressive Medicine* forms one of those works that the physician wants to keep at his hand and read at leisure in order to keep up with the times, because the literature is carefully selected, and discussed in such a manner that the advance in our knowledge become available.

WIDE: "HOME GYMNASTICS"

Home Gymnastics According to the Ling System. By Anders Wide, M. D. With 37 illustrations. Second revised edition of the authorized English translation. New York: The Funk and Wagnalls Company. 1908. Price 50 cents.

About the value, and indeed about the necessity, of exercise taken deliberately and regularly there can be no doubt. This being taken for granted, we are grateful to an author who presents us with the programs for such regular exercises and who explains and describes them as fully as Dr. Wide does. The reviewer obtained much valuable information from this little book and recommends it cordially to physicians for their personal use and for the use of their patients.

LOWRY: "HIMSELF"

Himself: Talks with Men Concerning Themselves. By E. B. Lowry, M. D., and Richard J. Lambert, M. D., Chicago: Fordes & Co. 1912. Price $1.00.

"The demand for a book that would state in nontechnical terms the things concerning the body that should be known by every adult male, without any attempt to dictate, has led to the publication of this book." It is the fifth of the series, the others—by Dr. Lowry—being: "Truths: Talks with a Boy;" "Confidences: Talks with a Girl;" "Herself: Talks with Women;" and "False Modesty."

Of the present volume we can say what we have already said of the others, that it deals with delicate subjects in a delicate manner, discussing them in an edifying way, without prudery, preaching or vulgarity. Dr. Lowry's books are just what we need to place in the hands of the young, to give them an insight on matters of which they too often learn only from ignorant and vicious servants or loafers. During the last few years there have been several attempts to fill this need, but none have accomplished the work so admirably as Dr. Lowry. In the preparation of the present volume, her husband, Dr. Lambert, has participated.

FOX: "BACTERIA AND PROTOZOA"

Elementary Bacteriology and Protozoology. The Microbiological Causes of the Infectious Diseases. By Herbert Fox, M. D. Illustrated with 67 engravings and 5 colored plates. Philadelphia: Lea & Febiger. 1912. Price $1.75.

The present work has been prepared to give the nurse and the beginner an idea concerning the nature of microorganisms and their relation to the world's economy, especially in disease. Emphasis has been laid upon how bacteria pass from individual to individual, how they enter the body and act when once within, and their manner of exit. The author has taken particular pains to show in a simple manner how bacteria produce disease.

This volume is of special use to physicians who desire to prepare addresses for lay audiences, and for the instruction of patients and of nurses. It is a handy little volume, fully illustrated, and fills a distinct place in medical literature.

BURR'S "PHYSICIAN'S VISITING LIST"

J. B. Burr & Co., of Hartford, Connecticut, have sent us a physician's visiting list. It consists of 12 monthly booklets that can be started at any time of the year. There are monthly call-lists, with provision for charges and references to the ledger. The booklets are of a handy size to slip in the vest-pocket, being thin enough not to be cumbersome. The price is 10 cents each, or $1.00 per dozen booklets. (See advertisement in CLINICAL MEDICINE for December.) The same firm offers prescription blanks in a variety of

inclusions, for details on which they must be addressed direct.

"MOTOR-CAR ANATOMY"

Motor-Car Anatomy. Being a book of valuable information for the prospective purchaser of an automobile. By Franklin Pierce, who has been active in the production of high-grade automobiles since the inception of the industry.

Through the courtesy of The Buckeye Manufacturing Company, of Anderson, Indiana, we have received this pretty little volume, which presents in a hundred small pages a very great amount of information on motor cars. The firm informs us that it will be glad to send a complimentary copy to any reader who asks for it and who will mention THE AMERICAN JOURNAL OF CLINICAL MEDICINE. All our readers who own or hope to own motor cars are invited to avail themselves of this offer.

SIMS' "CHRONIC DISEASES"

Talks on Chronic Diseases, with Special Reference to Mechanico-Therapeutical Treatment. A book for the General Practitioner, as well as for the specialist, on chronic diseases. A book that tells you how to treat successfully, how to relieve or to cure the chronic diseases mentioned herein. By Charles Andrew Starr Sims, M. D., Kansas City, Missouri: C. A. S. Sims. Price $5.00.

This is a distinctly "different" book in that the author has well succeeded in his avowed intention and attempt to leave out everything that could cloud the practical use of the information presented. From the original intention to present a small volume on mechanical therapy, with special reference to vibratory treatment in the treatment of chronic diseases, the author's contribution to medical literature has grown into a respectable volume of over 200 pages, in which, to be sure, mechanical, especially vibratory and allied forms of treatment are indicated more particularly, but which also offers a great many suggestions for medicinal and general treatment.

While the author avoids etiological, pathological and diagnostic discussions, for the sake of briefness and with a view of excluding everything that can be found in the textbooks commonly at the physician's command, he presents after each recommendation for treatment a brief paragraph on the theory of this treatment which vindicates the methods suggested.

While the reviewer is not in a position to decide upon the value of the mechanical treatment suggested, the directions that are given in the volume appear to him to be supported by common sense and to be decidedly reasonable. He can, however, affirm from his own knowledge that the medicinal and general directions given by the author for the treatment of the different affections under discussion are excellent, and to judge from these the reviewer does not hesitate to recommend the book as of great value to the general practician in his everyday practice. The text is brief and concise, so that it is absorbed readily. No searching is necessary, although of course reading of this book, like every other work of the physician, requires thought and reasoning.

DRUGGISTS CIRCULAR'S "MODERN MATERIA MEDICA"

The Modern Materia Medica. The source, chemical and physical properties, therapeutic action, dosage, antidotes, and incompatibles of all additions to the newer materia medica that are likely to be called for on prescriptions, together with the name and address of the manufacturer or proprietor, and in the case of foreign articles, of the American agent. Third edition, revised and enlarged. New York: *The Druggist's Circular*. Price $1.00.

The review of the prior (second) edition, in CLINICAL MEDICINE for October, 1912, page 1064, evidently is true for the present new edition of this excellent little work.

KNOWLTON: "DIABETIC COOK-BOOK"

Diabetic Cook Book. By Anna Colby Knowlton. Englewood, New Jersey: Anna Colby Knowlton. 1912. Price $2.00.

In this volume the author has made the attempt of presenting a large variety of dishes, which, if properly prepared, are attractive and relishable and which yet maintain the requirements of nutrition demanded in diabetics. The reviewer is not enough of a kitchen-mechanic to judge of the probable results when the different "prescriptions" are put up, but to the eye they certainly look good and appear to cover such foods as will serve to satisfy the craving for variety and for "nice things to eat."

CONDENSED QUERIES ANSWERED

PLEASE NOTE

While the editors make replies to these queries as they are able, they are very far from wishing to monopolize the stage and would be pleased to hear from any reader who can furnish further and better information. Moreover, we would urge those seeking advice to report their results, whether good or bad. In all cases please give the number of the query when writing anything concerning it. Positively no attention paid to anonymous letters.

QUERIES

QUERY 5881.—"Otitis Media and Facial Paralysis." T. P., Dakota, last spring was called to attend a woman with a terrible earache. Examination disclosed otitis media. Temperature and pulse were normal. The patient gave an impression of being of a very nervous disposition. She was not contented in this country and wanted to go back to Europe, whence she came six years ago.

One dram of olive oil and chloroform was injected slowly into her ear, which seemed to give relief. She also applied hot rags. The next morning the patient was without pain in the ear, felt just a trifle feverish, but had all signs of an approaching influenza. She complained of being deaf, as if both ears were packed; she also had tinnitus aurium. Her catamenia had just set in. Two days later she seemed to be very nervous (the doctor thought she had had a "shock of some kind"), and said she had a strange feeling in the face, especially when she drank water; she could not open her mouth as usual. The day after, she complained of tingling of the lips and tongue. The corner of the mouth was depressed and she could not whistle. It seemed a typical case of Bell's palsy. Then for another week she had a terrible earache, which finally stopped when the abscess broke, pus escaping into the mouth through the eustachian tube. After a few days more, "faradic bathing" was instituted, and diaphoretics and counterirritants were ordered. She also was blistered once. She improved a great deal, but has had attacks of neuritis as soon as she exposed herself to cold.

In May, the woman's mouth drew back a little so that she could whistle, but the paralysis persisted and one eye was lower than the other and "half of the nose was kind of stiff." She also complained of difficulty in forming words. This condition has now lasted for five months, without improvement, in spite of the use of electricity and administrations of nerve tonics and daily massages. She now complains of pain along the course of the nerves on the affected side. In the middle of October it was very cold and she got "an attack of neuritis nearly all over the face," this lasting two days; since then the middle of the upper lip skews toward the paralyzed side. Now she is "more sore than before over the frontalis and infraorbitalis. For the last month there has been a gathering over the infraorbitalis, just like a little boil, but it does not break." This is her present condition.

Now, as you will readily understand, doctor, treatment in this case must to a very great extent be based upon a clear conception of middle-ear conditions. As you are aware, the facial nerve runs through the petrous portion of the temporal bone to the tympanic cavity, and, hence, is likely to be implicated by acute inflammatory processes of the ear, as well as by chronic suppurations, necrosis, and so on.

Many French authors hold that facial paralysis is almost invariably due to an inflammatory disease of the middle-ear. Though this may be an extreme view, the history in the majority of patients examined shows that for some days prior to the appearance of paralysis there was more or less difficulty of deglutition or dull pain in the middle-ear; quite frequently the inflammatory process extends from the tonsils, through the eustachian tube, to the middle-ear.

The onset of facial paralysis in some cases is sudden; in others, progressive. Not infrequently the patients complain of tinnitus aurium, slight difficulty in hearing, vertigo, pain in head and face; sometimes there is a slight rise of temperature or general malaise. Pain in head, ear, neck, over the forehead, temporals, and zygomatic arches, which may

precede or accompany facial paralysis, indicates implication of numerous nerves—trigeminal, glossopharyngial, and upper cervical. It is well known that patients with a beginning facial paralysis generally seek relief from a pain that frequently is excruciating and deprives them of sleep. It may be present for a week or so before complete paralysis appears.

In the case you describe, you seem to have a typical case of facial paralysis due to infection of the middle-ear. You say that you injected into the ear "1 dram of olive oil and 5 drops of chloroform, which seemed to give her relief." It is hardly possible that the auditory canal, especially if congested, could retain this amount of fluid. Is it possible that the tympanum was ruptured and that some of the fluid was forced into the middle-ear? The "strange feelings in the face and mouth" which the patient complained of, with "tingling of the lips, tongue, etc.," are typical. We do not think that any "shock" was necessary to produce those conditions.

The second earache which you mention, and which "stopped when the abscess broke" and pus escaped, shows very conclusively the existence of a deep and extensive infection; and under the circumstances the services of a skilful aurist should be secured at the earliest possible moment.

Is there any possibility of a syphilitic taint in this case? Search also for evidences of diabetes and acidemia. It may be possible, that at the time the middle-ear became infected a subacute neuritis existed; the otitis being a complication, not a causative condition. Unilateral facial paralysis occurs both in acute and subacute neuritis (as well as in diseases of the tonsils, influenza, diabetes, etc.) which generate toxins in the organism. In fact, there are many other etiologic factors to which Bell's palsy may be attributed. Naturally, prognosis depends upon basal conditions.

You do not mention the brief, lightning-like contractions which so frequently appear in such cases; neither do you seem to designate states of electric irritability, i. e., the electrical changes designated by the woman's reactions of degeneration. In mild peripheral paralysis, changes are slight and may completely disappear in a few weeks. In the severe forms, electrical contractility for faradic and galvanic currents decreases steadily after the second or perhaps the third day of the attack, and in the course of from eight to twelve days response to either current is lost.

In addition to the mild and severe forms of facial paralysis, modern clinicians recognize a third type, which has been designated the medium; and, in this form, direct faradic contractility is somewhat lessened in comparison with the normal side, as is also indirect contractility; but neither are wholly lost or even greatly diminished. It must not be forgotten, however, that a paralysis that appears mild for two or three weeks may in a few days assume the medium type. Prognosis usually is, of course, better than it would be in the severe form, but it does not permit us to promise a speedy recovery.

If in eight or ten days after the onset of paralysis faradical contractility has disappeared, or almost entirely so, we have to deal with the severe form of paralysis, and recovery cannot be expected for months; in milder cases, recovery, as a rule, occurs in from three to four weeks; the medium form lasts longer—one to two months.

It is entirely impossible, with the data at our disposal, to discuss this case, but we would point out the necessity of arriving at a diagnosis. The existence of peripheral facial paralysis being established, the exact location of the lesion and course of the nerve should be ascertained.

A study of the diagram, on page 670 and 671, in "Diseases of the Nervous System," by Salinger, would prove enlightening; in fact, the entire chapter upon prosoplegia is worth a careful study. See also the figure on page 679, illustrating the facial nerve and its communications with the trigeminal and glossopharangeal nerves.

As we already have stated, existent conditions of the ear must be recognized and an attempt made to cure these. Elimination should be stimulated and, if an acidemia exists, this be corrected. The arsenates nearly always are advisable. We should be inclined to give the triple arsenates with nuclein, alternating, perhaps, with arsenic iodide, week and week about. But, by all means, have the patient's urine examined at the earliest possible moment.

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QUERY 5882.—"Hemoglobinuria." J. F. H., Arkansas, recently has had under treatment a very bad case of hemoglobinuria, and he expresses the belief that one of the predisposing factors is an acid intoxication. As he is unable to find any mention of this matter in any works on malaria (except a mention of indications for sodium sulphite by Webster, in his "New Eclectic Practice"), he asks

whether his conclusions are warranted. The doctor adds:

"This subject may be of interest to doctors in this and other intensely malarial regions, and I should like to obtain as many samples of urine from swamp-fever patients as possible. Perhaps CLINICAL MEDICINE could assist me in getting these together, with a clinical history of each case. I have had a number of patients with chronic malaria who suffered intensely from strangury, but cleared up promptly when sodoxylin was given in full doses, three times per day."

To the foregoing, the following reply, substantially, was made:

For a long time we have pointed out the importance of recognizing underlying acidemia, and have proven definitely that a host of symptoms, some of them most rebellious to treatment, disappear upon the correction of autotoxemia due in a majority of cases to intestinal fermentation. For instance, it has been satisfactorily demonstrated that pyorrhea alveolaris is an evidence of acidemia. Correct the disorder of the body-chemistry, and local conditions are readily controlled.

We think it would be a good plan for you to send a specimen of this patient's urine (4 ounces from the 24-hours' output, stating total quantity voided) to a reliable biologic laboratory.

We are constantly receiving such specimens from physicians, and should those from patients suffering from malaria reveal a concomitant acidemia, we shall note the fact, and as soon as we have sufficient data of cases to form a definite opinion upon, we shall announce it. As a matter of fact, however, in these days most physicians believe in the "clean-up and keep-clean" method of treatment.

Most individuals suffering from malaria may receive comparatively large doses of calomel or of calomel and podophyllin, followed by a laxative saline draught; and in a very large number of cases the sulphocarbolates are given freely. Naturally any existent acidemia is corrected thereby.

As you are aware, many observers in our southern states agree that quinine given in full doses is apt to produce hemoglobinuria. The condition may present itself while the patient is cinchonized. Quinine being a protoplasmic poison, it always renders hemoglobin unstable and destroys red cells. If this action is added to the destruction by the plasmodium malariæ, it may cause the escape of hemoglobin into the urine. Some clinicians advise quinine if hemoglobinuria occurs *during* a paroxysm, the parasites then being found in the blood. The drug should be withheld if parasites are not found; if given before hemoglobinuria occurs, and no parasites are discovered, it should be suspended, but continued if they persist.

Tannic acid, 15 grains every two hours for four or five doses, has proven effective in hemoglobinuria. Sodium salicylate also has been recommended.

Then, in response to the foregoing letter, our correspondent writes:

"What I particularly want to get at is, whether acidemia may or may not be one of the predisposing factors in malarial hemoglobinuria. I understand that quinine is supposed to produce this condition at times; other authorities state that insufficient dosage of quinine will also produce hemoglobinuria. Do you not think that quinine given in large dosage, where an acidemia exists, will more readily produce hemoglobinuria than otherwise? I'll relate an applicable case.

"A man, age 33, single, farmer, has had malaria for about a month, the paroxysms returning every seventh or fourteenth day. He had been taking treatment for malaria, but it seems that quinine had been given either in insufficient dosage or that his bowels had not moved before the quinine was taken. I was sent for at 8 o'clock in the morning and arrived at 9:30, to find the patient urinating about every hour. The urine was brightly colored with blood, in fact was black. Temperature was 104° F.; pulse, about 60 per minute. He was taking 2 1-2 grains of calomel and 1-8 grain podophyllin every hour, with a tablespoonful of the elixir of buchu, juniper and potassium acetate every three hours. He had instructions from his doctor to take 10 drops of oil of turpentine at 12 o'clock.

"I immediately gave him 40 grains of calomel, 15 grains of jalap, following this in an hour with 2 teaspoonfuls of magnesium sulphate in hot water. In a wagon I took him 2 1-2 miles to where I could look after him. In two hours there was action of his bowels, and the temperature dropped to 102° F., staying there till morning, then gradually falling to 101° F.; the pulse was about 90 per minute. That night we sent for another doctor, who arrived at 9 o'clock next morning.

"We then gave the patient 15 grains of quinine and urea hypodermically, discontinued the buchu mixture, and gave him, instead, an alkaline diuretic. Besides, we gave normal salt solution with a soft-rubber catheter per rectum (drop-method), and

ordered all the warm water he could drink. The next morning, which was the third day, we gave again 15 grains of quinine and urea hypodermically, to keep off the paroxysm. On this day the kidneys cleared up, and have remained all right. Again, on the seventh day, I gave him 12 grains more of the quinine and urea.

"Now I am giving him intramuscular injections of iron and arsenic; also, chionanthus virginica, 15 drops every three hours. He is improving rapidly. I expect to give him 12 grains more of quinine on the fourteenth, twenty-first, twenty-eighth and thirty-fifth days. Does it not seem, in this case, that the acidemia had something to do with the hemorrhage?"

Autotoxemia in a pronounced form was probably present here, and it is natural to suppose that its correction would, to a great extent, relieve renal congestion and thus hematuria; and it must be remembered that in many cases of socalled "hemoglobinuria" we have to deal with hematuria.

In hemoglobinuria occurring in a malarial patient, it is probable that the plasmodia malariæ act directly upon the blood-cells in the parenchyma or renal tubules, such hemocytolysis causing hemoglobinuria. This question never has been definitely settled, but we do know that, in many cases of socalled hemoglobinuria, blood in large quantities has been discovered; that, in fact, hematuria existed.

Extremely high temperature is just as likely to produce hemoglobinuria as the ingestion of large quantities of quinine, both agencies breaking up the close adhesion of the hemoglobin to the blood-cells and causing its liberation.

In "black-water-fever," so called (and you would seem to have had a typical case under observation), the causative agent undoubtedly is the toxins that exert a deleterious action upon the erythrocytes. Such action may be increased by an exhibition of quinine, or the drug itself, given for therapeutic effect, may produce hemoglobinuria.

It is probable that in certain toxemias the combination of the hemoglobin with the stroma of the blood-disks has become looser than normal and causes that ordinarily would be harmless then prove sufficient to produce separation of the hemoglobin. In this way we could readily account for "paroxysmal hemoglobinuria," so called, which manifests itself after the initial phenomena of the chill and quick rise of the temperature to 103° or 104° F. The urine voided after such a chill often is smoky or brownish-red in color and contains hemoglobin in quantities. This condition may persist for some time, much depending upon the intensity of the toxemia, that is, the disintegration of the blood-corpuscles.

The whole subject is of intense interest, but, unfortunately, the case here reported does not in any way prove that a concurrent acidemia increases the liability of hemoglobinuria. No examination of this patient's urine was made, and we do not know that an acidosis existed.

In this connection, doctor, let us ask you why you consider 40 grains of calomel a desirable dose? You are familiar, of course, with the fact that a very much smaller quantity of the drug at times proves excessive. Under any circumstances, only a certain amount of calomel can undergo the desired chemical change in the intestinal canal, and, unless very prompt and thorough elimination is secured, such large doses are apt to cause salivation.

This writer having practised in Georgia, he is aware of the fact that southern practitioners, as a whole, believe firmly in large doses both of quinine and calomel. Nevertheless, it has been conclusively shown that a more pronounced impression can be made in practically every case with repeated small doses; in fact, an excess of drug (quinine or calomel) is apt to produce disastrous results.

We do not want to enter into an argument upon this point here, for volumes already have been written upon the subject; still, we would like to ask whether you have tried repeated small doses of quinine, especially the arsenate and the hydroferrocyanide, maintaining, meanwhile, thorough elimination with small doses of blue mass and soda and podophyllin, or calomel and podophyllin followed by laxative salines?

As the spleen in all these cases is more or less congested, berberine is strongly indicated, and the writer believes he can handle any case of malaria satisfactorily with these four remedies. Of course, it may become necessary to meet urgent symptoms with emergency-remedies; but the emergency once passed, the infection itself should be readily controlled.

We should like to know the outcome of this particular case, and strongly advise that you examine the patient's urine from time to time; and at the very next opportunity examine her urine before, during, and after the paroxysm, noting carefully the

acidity, output of urea, and presence or absence of indican and skatol.

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QUERY 5883.—"The Anesthetic of Choice in Circumcision." A. R. H., California, wants to know what is the most satisfactory local anesthetic for circumcision? Also, what, if any, is the field of hyoscine-morphine-cactin here?

In circumcising an adult, we would suggest the exhibition of hyoscine-morphine-cactin, one tablet, one and one-half hours prior to operation. When the injection is given, the patient should be undressed, the part cleansed, and he should be put to rest at once in a darkened, quiet room. At the end of an hour he is more or less somnolent and a very few whiffs of volatile anesthetic, i. e., ethyl chloride or chloroform, now will ensure a perfectly satisfactory operation, without the patient experiencing dread or pain.

Local anesthesia is not always satisfactory. Children especially object almost as much to the injection of the anesthetic as they would to quick cision of the prepuce; and, even though the parts be thoroughly anesthetized, the little ones, knowing the work is being done, kick and struggle and greatly disturb the operator. Therefore, for some time, I have insisted upon general anesthesia if the patient is under twelve years of age. Infants, of course, can be circumcised without the use of an anesthetic, stitches not being essential, and one sweeping cut is all that is necessary. In such cases we cannot very much improve upon the method of the more advanced Jewish "mohl."

Where stitches are necessary (and the mucosa and skin should always be approximated in older children and adults), general anesthesia is especially desirable; for, as a matter of fact, insertion of sutures is more painful than excision of the prepuce. Moreover, the effect of any anesthetic injected into the tissues may be lost before the last stitch is placed.

This writer circumcises a good many people, and he finds anesthaine a satisfactory anesthetic where local anesthesia alone is desirable. After cleansing the parts thoroughly—the patient preferably having received one hyoscine-morphine-cactin tablet, half-strength or full strength (according to age or condition) an hour earlier—place a rubber band about the root of the organ, to shut off circulation. This must not be too tight, however, and the vessels should be emptied by pressure and elevation before it is fastened.

With a perfectly sterile syringe and needle, inject 1 or 2 minims of anesthaine into the skin at the point of incision. Into the wheal that is formed, insert the needle until the point is free between the two layers of tissue, and inject 3 or 4 minims in one direction; turn the needle upward and inject 1 or 2 minims more; then downward, injecting another minim or so; then to the side, throwing in an equal quantity. If properly done this will anesthetize at least one-half the tissues to be incised. Remove the needle and repeat the process upon the opposite side. Test sensibility after three or four minutes by pricking with the point of a scalpel. If necessary, inject a few more drops on the dorsum and about the frenum. As soon as anesthesia is complete, operate quickly, covering the patient's eyes before the incision is made.

It is always advisable to have an assistant control the legs. For some time I have made it a rule to place a broad bandage (a large bath-towel will do) over the body from neck to waist, pinning this securely under the table, to act as a restraining band. (Under general anesthesia this is omitted.) It is not desirable to inject too much anesthetic solution into the preputial tissues; and an aseptic technic must be observed.

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QUERY 5884.—"Raynaud's Disease." W. W., Mississippi, requests therapeutic and diagnostic suggestions in the case of a boy, age 6 years, fair health, looks pale, family history good. One year ago a callous area appeared on his great toe, which kept shedding and reforming, till that toe, bone, and all is gone. Never was very sore. The boy is walking all the time, and now the other great toe is going the same way. A little pus is discharged and little soreness obtains.

There is no question in our mind that your patient suffers from Raynaud's disease.

It may involve the fingers, toes, ears, nose, and occasionally other parts may be affected. On the ears and nose, however, the gangrenous stage is rarely reached. The first symptoms, as a rule, are coldness and slight hardening; sooner or later the second stage is reached, in which the parts become dark-red and bluish; and, finally, especially if the fingers or toes are involved, they may become atrophic and indurated, or a gangrenous condition may obtain, the affected area gradually dropping off in a mummified condition or cast off by the underlying inflammation or suppuration. The latter causes a resultant ulcer which heals slowly.

Raynaud's disease has been ascribed to many agencies: cold, exposure, disturbance

of nutrition, sequence to severe systemic fever, nephritic disorders, and to various neuroses. An arteritis of syphilitic origin, however, undoubtedly is responsible for many cases; in others, the disease is of neurotic origin, a vasomotor nutritive disturbance.

Naturally, the recognition of the underlying pathological condition is all-important. Treatment, therefore, will vary in different cases. Elimination should be maintained, a full generous diet ordered, and reconstructant tonics prescribed.

Lecithin would undoubtedly prove beneficial. Some success has been secured from the use of the galvanic current; the positive pole applied to the fifth cervical and the negative over the last lumbar vertebra. The current should be moderately strong and continued for five to ten minutes. The positive pole may also be applied to the cervical region, the negative over the affected area.

In the later stages, local treatment is essentially surgical. Rigid antisepsis must, of course, be maintained. We should be inclined to make a Wassermann test in this case. Also test the urine for sugar; the boy may be diabetic.

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QUERY 5885.—"Drowsiness Versus Iodism." A. C., Michigan, desires to know whether drowsiness and sleepiness is produced by full doses of calx iodata. "I have never dispensed this remedy," he states, "but one patient complained of being so drowsy and sleepy after taking it. There was nothing alarming about this drowsiness at all, nor any untoward effects. I would simply like to know whether this is a usual effect of calx iodata. I am highly pleased with all alkaloidal preparations."

Calx iodata should not produce sleepiness or even drowsiness. This is not one of the effects of iodine in moderate dosage. It is just possible, of course, that a certain amount of drowsiness might accompany iodism, but you would have to give the element for a very considerable period or in very large doses to produce the condition.

We have given calx iodata to thousands of patients and have never observed the slightest sign of drowsiness.

The earliest notable signs of iodism are a peculiar metallic taste in the mouth (observed particularly in the morning), increase of salivary secretion, tenderness of the gums, slight loosening of the teeth, some morning nausea, with a lack of appetite and more or less gastric irritation; and usually some coryza. Acne comes on early if full doses of iodine are given, and, if the drug is continued, these symptoms are accentuated, the coryza becoming intense. Later, sore throat may develop, hemorrhages be complained of, boils, purpura, pustular and bleb-like changes in the skin make their appearance; in other patients, the nervous system seems to be most affected. There are neuralgic pains, twitching of muscles, general wasting of the mammæ, testicles, and other tissues. It is asserted by some clinicians that albuminuria may be observed in children after a course of iodine.

However, we have pointed out already, calx iodata and iodine are two very distinct things, the calcium-content preventing the undesirable action of iodine making itself manifest, unless unusually large and frequently repeated doses are given. Under the circumstances, we suggest that you carefully review your medication and see whether the drowsiness is not due to some other drug —or, more probably, to lack of elimination.

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QUERY 5886.—"Delphinine for Muscular Twitching." W. H. P., Rhode Island, has under treatment a neurasthenic woman who has muscular twitchings when she retires at night. The twitchings are chiefly confined to the legs. He asks whether delphinine is indicated. A large number of remedies have been tried without much, if any, benefit.

Delphinine might possibly prove efficacious here. Scutellaroid and avenine also frequently prove beneficial. In motor irritability, cicutine gives good results; so, also, solanine, pushed to effect, might advantageously be tried under the circumstances. The latter is a valuable antispasmodic, of particular service in epilepsy, functional disease, tetanus, and so on.

Cicutine acts through the medulla and spinal cord, causing paralysis of the terminal sensory and motor nerves. In all cases, therefore, in which it is necessary to calm excitement, relieve pain or overcome spasmodic conditions and "nervous irritability," solanine promises excellent results. Drug-sufficiency is indicated by an acrid burning in the throat and by drowsiness. When these symptoms appear, the dose should be rapidly reduced and intervals lengthened. Free elimination must, of course, be secured. On general principles, we should advise to use delphinine or solanine as the dominant remedy and scutellaroid and avenine as alternates. Prescribe 1-3 grain of scutellaroid and 1-2 to 1 grain of avenine, three times daily, preferably with hot water.